



SAN ANTONIO  
RIVER AUTHORITY

UT-MRT4-NPDES-DMR-CORR

August 20, 2019

Executive Director  
Texas Commission on Environmental Quality  
Attn: Water Quality Division  
Application Review and Processing Team (MC148)  
P.O. Box 13087  
Austin, Texas 78711-3087

Reference: Martinez IV Wastewater Treatment Plant, RN105285506  
TPDES Permit No. WQ0010749-007 and NPDES No. TX0129861;  
San Antonio River Authority CN600790620; Tax No. 1-74-6011311-5

Subject: Domestic Wastewater Permit Renewal Application

Dear Madam/Sir:

Enclosed are one original and three copies of a permit renewal application for the above referenced plant. An application fee in the amount of \$2,050.00 has been sent under separate cover to the TCEQ Revenues Section (MC 214). A copy of payment submittal is included as one of the attachments to the application.

If you have any questions pertaining to this matter, please contact me at (210) 302-4200.

Sincerely,

*Clairissa Flores*

CLAIRISSA FLORES  
Chief Operator

CF:ddv

Enclosure

EXECUTIVE  
COMMITTEE



CHAIRMAN  
Darrell T. Brownlow, Ph.D.

VICE CHAIRMAN  
Michael W. Lackey, P.E.

SECRETARY  
Lourdes Gulvan

TREASURER  
Jim Campbell

MEMBERS AT-LARGE  
Gaylon J. Gehlke  
James Fuller, M.D.



BOARD OF DIRECTORS

BEXAR COUNTY  
DISTRICT 1  
Larry G. Gonzalez

DISTRICT 2  
Lourdes Gulvan

DISTRICT 3  
Michael W. Lackey, P.E.

DISTRICT 4  
Jim Campbell

AT-LARGE  
Hector R. Morales  
Deb Bolner Pross

WILSON COUNTY  
Darrell T. Brownlow, Ph.D.  
John J. Flieller

KARNES COUNTY  
H.B. Ruckman, III  
Gaylon J. Gehlke

COMAL COUNTY  
James Fuller, M.D.  
Abigail Lott Cowley



GENERAL MANAGER  
Suzanne Scott

Martinez IV Wastewater Discharge Permit Amendment 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

Table of Contents

Part I	Domestic Administrative Report
	Domestic Administrative Report 1.0
	Domestic Administrative Report 1.1
	Supplemental Permit Information Form
Part II	Domestic Technical Report
	Domestic Technical Report 1.0
	Domestic Technical Report 1.1
	Domestic Worksheet 2.0- Receiving Waters
	Domestic Worksheet 2.1- Stream Physical Characteristics
	Domestic Worksheet 4.0
	Domestic Worksheet 6.0-Industrial Waste Contribution
Part III	Attachments
Attachment 1	Copy of Check Reference: Domestic Administrative Report 1.0 Section 1
Attachment 2	Core Data Form Reference: Domestic Administrative Report 1.0 Section 3 C
Attachment 3	Original USGS Map Reference: Domestic Administrative Report 1.0 Section 13
Attachment 4	Affected Landowner Map, List, and Labels Reference: Domestic Administrative Report 1.1 Section 1
Attachment 5	Original Photographs with Map Reference: Domestic Administrative Report 1.1 Section 2
Attachment 6	Buffer Zone Map Reference: Domestic Administrative Report 1.1 Section 3
Attachment 7	Original USGS Map Reference: Supplemental Permit Information Form (SPIF) Page 17, Item 5

**Martinez IV Wastewater Discharge Permit Amendment 08/2019**  
**TPDES No. WQ0010749-007 (EPA I.D. TX0129861)**

**Table of Contents**  
**(Continued)**

<b>Attachment 8</b>	<b>Treatment Process Description</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 2 A</b>
<b>Attachment 9</b>	<b>Treatment Units</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 2 B</b>
<b>Attachment 10</b>	<b>Process Flow Diagrams</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 2 C</b>
<b>Attachment 11</b>	<b>Site Drawing</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 3</b>
<b>Attachment 12</b>	<b>Permit Specific Requirements</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 6 C</b>
<b>Attachment 13</b>	<b>Pollutant Analysis of Treated Effluent</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 7</b>
<b>Attachment 14</b>	<b>Sludge Acceptance Agreement</b> <b>Reference: Domestic Technical Report 1.0</b> <b>Section 9 A</b>
<b>Attachment 15</b>	<b>Agreement with City of Schertz</b> <b>Reference: Domestic Technical Report 1.1</b> <b>Section 1 B1</b>
<b>Attachment 16</b>	<b>Agreement with Green Valley SUD (CCN Facility)</b> <b>Reference: Domestic Technical Report 1.1</b> <b>Section 1 B2</b>
<b>Attachment 17</b>	<b>Design Calculations</b> <b>Reference: Domestic Technical Report 1.1</b> <b>Section 4</b>
<b>Attachment 18</b>	<b>Wind Rose</b> <b>Reference: Domestic Technical Report 1.1</b> <b>Section 5 B</b>

**Martinez IV Wastewater Discharge Permit Amendment 08/2019**  
**TPDES No. WQ0010749-007 (EPA I.D. TX0129861)**

**Table of Contents**  
**(Continued)**

- Attachment 19    Sewage Sludge Solids Management Plan**  
**Reference: Domestic Technical Report 1.1**  
**Section 7**
- Attachment 20    Pollutant Analyses Requirements**  
**Reference: Domestic Worksheet 4.0**





## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION  
CHECKLIST

Complete and submit this checklist with the application.

APPLICANT: San Antonio River AuthorityPERMIT NUMBER: WQ0010749-007

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administrative Report 1.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Affected Landowners Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SPIF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Landowner Disk or Labels	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffer Zone Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 2.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Design Calculations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solids Management Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water Balance	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 5.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 6.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 7.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

## For TCEQ Use Only

Segment Number \_\_\_\_\_ County \_\_\_\_\_  
 Expiration Date \_\_\_\_\_ Region \_\_\_\_\_  
 Permit Number \_\_\_\_\_



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
**APPLICATION FOR A DOMESTIC WASTEWATER PERMIT  
ADMINISTRATIVE REPORT 1.0**

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

### Section 1. Application Fees (Instructions Page 29)

Indicate the amount submitted for the application fee (check only one).

Flow	New/Major Amendment	Renewal
<0.05 MGD	\$350.00 <input type="checkbox"/>	\$315.00 <input type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input checked="" type="checkbox"/>	\$2,015.00 <input type="checkbox"/>

Minor Amendment (for any flow) \$150.00 ☐

#### Payment Information:

Mailed      Check/Money Order Number: 931973  
Check/Money Order Amount: \$8,130.00  
Name Printed on Check: San Antonio River Authority  
EPAY      Voucher Number: SEE ATTACHMENT 1  
Copy of Payment Voucher enclosed?      Yes ☒

### Section 2. Type of Application (Instructions Page 29)

- |   |   |
|---|---|
| <input type="checkbox"/> New TPDES                                      | <input type="checkbox"/> New TLAP                               |
| <input checked="" type="checkbox"/> Major Amendment <u>with</u> Renewal | <input type="checkbox"/> Minor Amendment <u>with</u> Renewal    |
| <input type="checkbox"/> Major Amendment <u>without</u> Renewal         | <input type="checkbox"/> Minor Amendment <u>without</u> Renewal |
| <input type="checkbox"/> Renewal without changes                        | <input type="checkbox"/> Minor Modification of permit           |

For amendments or modifications, describe the proposed changes: Increase existing 2-hour peak flow from 0.75 MGD to 1.0 MGD. Increase phase II design flow from 0.50 MGD to 0.91 MGD.

#### For existing permits:

Permit Number: WQ0010749-007

EPA I.D. (TPDES only): TX0129861

Expiration Date: March 1, 2020

### Section 3. Facility Owner (Applicant) and Co-Applclicant Information (Instructions Page 29)

**A. The owner of the facility must apply for the permit.**

What is the Legal Name of the entity (applicant) applying for this permit?

San Antonio River Authority

*(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)*

If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at <http://www15.tceq.texas.gov/crpub/>

CN: 600790620

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in 30 TAC § 305.44.

Prefix (Mr., Ms., Miss): Ms.

First and Last Name: Suzanne B. Scott

Credential (P.E, P.G., Ph.D., etc.):

Title: General Manager

**B. Co-applclicant information.** Complete this section only if another person or entity is required to apply as a co-permittee.

What is the Legal Name of the co-applclicant applying for this permit?

N/A

*(The legal name must be spelled exactly as filed with the TX SOS, with the County, or in the legal documents forming the entity.)*

If the co-applclicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at: <http://www15.tceq.texas.gov/crpub/>

CN:

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in 30 TAC § 305.44.

Prefix (Mr., Ms., Miss):

First and Last Name:

Credential (P.E, P.G., Ph.D., etc.):

Title:

Provide a brief description of the need for a co-permittee:

### C. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of Administrative Report 1.0.

Attachment: 2

## Section 4. Application Contact Information (Instructions Page 30)

This is the person(s) TCEQ will contact if additional information is needed about this application. Provide a contact for administrative questions and technical questions.

### A. Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Daniel Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Utilities Operations Superintendent

Organization Name: San Antonio River Authority

Mailing Address: 100 E. Guenther Street

City, State, Zip Code: San Antonio, TX 78204

Phone No.: (210) 302-4200 Ext.:

Fax No.: (210) 661-9324

E-mail Address: danielf@sara-tx.org

Check one or both: ☒ Administrative Contact ☒ Technical Contact

### B. Prefix (Mr., Ms., Miss): Ms.

First and Last Name: Clairissa Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Chief Operator/Industrial Waste Inspector

Organization Name: San Antonio River Authority

Mailing Address: 100 E. Guenther Street

City, State, Zip Code: San Antonio, TX 78204

Phone No.: (210) 302-4200 Ext.:

Fax No.: (210) 661-9324

E-mail Address: cflores@sara-tx.org

Check one or both: ☒ Administrative Contact ☒ Technical Contact

## Section 5. Permit Contact Information (Instructions Page 30)

Provide two names of individuals that can be contacted throughout the permit term.

A. Prefix (Mr., Ms., Miss): Ms.First and Last Name: Clairissa Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Chief Operator/Industrial Waste InspectorOrganization Name: San Antonio River AuthorityMailing Address: 100 E. Guenther StreetCity, State, Zip Code: San Antonio, TX 78204Phone No.: (210) 302-4200 Ext.:Fax No.: (210) 661-9324E-mail Address: cflores@sara-tx.orgB. Prefix (Mr., Ms., Miss): Ms.First and Last Name: Amy MiddletonCredential (P.E, P.G., Ph.D., etc.): P.E.Title: Utilities ManagerOrganization Name: San Antonio River AuthorityMailing Address: 100 E. Guenther StreetCity, State, Zip Code: San Antonio, TX 78204Phone No.: (210) 302-4200 Ext.:Fax No.: (210) 661-9324E-mail Address: amiddleton@sara-tx.org**Section 6. Billing Information (Instructions Page 30)**

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits *in effect on September 1 of each year*. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (using form TCEQ-20029).

Prefix (Mr., Ms., Miss): Ms.First and Last Name: Suzanne B. Scott

Credential (P.E, P.G., Ph.D., etc.):

Title: General ManagerOrganization Name: San Antonio River AuthorityMailing Address: 100 E. Guenther StreetCity, State, Zip Code: San Antonio, TX 78204Phone No.: (210) 227-1373 Ext.:Fax No.: (210) 661-9324E-mail Address: sbscott@sara-tx.org**Section 7. DMR/MER Contact Information (Instructions Page 31)**

Provide the name and complete mailing address of the person delegated to receive and submit

Discharge Monitoring Reports (EPA 3320-1) or maintain Monthly Effluent Reports.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Daniel Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Utilities Operations Superintendent

Organization Name: San Antonio River Authority

Mailing Address: 100 E. Guenther Street

City, State, Zip Code: San Antonio, TX 78204

Phone No.: (210) 302-4200 Ext.:

Fax No.: (210) 661-9324

E-mail Address: danielf@sara-tx.org

DMR data is required to be submitted electronically. Create an account at:

<https://www.tceq.texas.gov/permitting/netdmr/netdmr.html>.

## Section 8. Public Notice Information (Instructions Page 31)

### A. Individual Publishing the Notices

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Daniel Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Utilities Operations Superintendent

Organization Name: San Antonio River Authority

Mailing Address: 100 E. Guenther Street

City, State, Zip Code: San Antonio, TX 78204

Phone No.: (210) 302-4200 Ext.:

Fax No.: (210) 661-9324

E-mail Address: danielf@sara-tx.org

### B. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

☒ E-mail Address

☐ Fax

☒ Regular Mail

### C. Contact person to be listed in the Notices

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Daniel Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Utilities Operations Superintendent

Organization Name: San Antonio River Authority

Phone No.: (210) 302-4200 Ext.:

E-mail: danielf@sara-tx.org

**D. Public Viewing Information**

*If the facility or outfall is located in more than one county, a public viewing place for each county must be provided.*

Public building name: San Antonio Central Public Library

Location within the building: Wilson Plunkett/Government Documents Section

Physical Address of Building: 600 Soledad Street

City: San Antonio, TX 78205

County: Bexar

Contact Name:

Phone No.: (210) 207-2500 Ext.:

**E. Bilingual Notice Requirements:**

This information is required for new, major amendment, and renewal applications. It is not required for minor amendment or minor modification applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

☒ Yes      ☐ No

If no, publication of an alternative language notice is not required; skip to Section 9 below.

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

☒ Yes      ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

☐ Yes      ☒ No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?  
☐ Yes      ☒ No
5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish

### Section 9. Regulated Entity and Permitted Site Information (Instructions Page 33)

- A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. RN105285506

Search the TCEQ's Central Registry at <http://www15.tceq.texas.gov/crpub/> to determine if the site is currently regulated by TCEQ.

- B. Name of project or site (the name known by the community where located):

Martinez IV Wastewater Treatment Facility

- C. Owner of treatment facility: San Antonio River Authority

Ownership of Facility: ☒ Public      ☐ Private      ☐ Both      ☐ Federal

- D. Owner of land where treatment facility is or will be:

Prefix (Mr., Ms., Miss): same

First and Last Name:

Mailing Address:

City, State, Zip Code:

Phone No.:

E-mail Address:

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: N/A

- E. Owner of effluent disposal site:

Prefix (Mr., Ms., Miss): N/A

First and Last Name:

Mailing Address:

City, State, Zip Code:

Phone No.:

E-mail Address:

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: N/A



- F. Owner of sewage sludge disposal site (if authorization is requested for sludge disposal on property owned or controlled by the applicant):

Prefix (Mr., Ms., Miss): N/A

First and Last Name:

Mailing Address:

City, State, Zip Code:

Phone No.:

E-mail Address:

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: N/A

## Section 10. TPDES Discharge Information (Instructions Page 34)

- A. Is the wastewater treatment facility location in the existing permit accurate?

☐ Yes ☒ No

If **no**, or a new permit application, please give an accurate description:

2095 N Graytown Rd, Saint Hedwig, TX 78152

- B. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

☒ Yes ☐ No

If **no**, or a new or amendment permit application, provide an accurate description of the point of discharge and the discharge route to the nearest classified segment as defined in 30 TAC Chapter 307:

City nearest the outfall(s): Saint Hedwig

County in which the outfalls(s) is/are located: Bexar

Outfall Latitude: 29 deg 26 min 27.7 sec Longitude: 98 deg 14 min 59.8 sec

- C. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If **yes**, indicate by a check mark if:

☐ Authorization granted ☐ Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: N/A

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge.

N/A

## Section 11. TLAP Disposal Information (Instructions Page 36)

- A. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes ☐ No

If no, or a new or amendment permit application, provide an accurate description of the disposal site location:

N/A

- B. City nearest the disposal site: N/A

- C. County in which the disposal site is located: N/A

- D. Disposal Site Latitude: N/A Longitude: N/A

- E. For TLAPs, describe the routing of effluent from the treatment facility to the disposal site:

N/A

- F. For TLAPs, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:

N/A

## Section 12. Miscellaneous Information (Instructions Page 37)

- A. Is the facility located on or does the treated effluent cross American Indian Land?

☐ Yes ☒ No

- B. If the existing permit contains an onsite sludge disposal authorization, is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ Not Applicable

If No, or if a new onsite sludge disposal authorization is being requested in this permit

application, provide an accurate location description of the sewage sludge disposal site.

C. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☐ Yes ☒ No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application:

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account number:

Amount past due:

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, please provide the following information:

Enforcement order number:

Amount past due:

### Section 13. Attachments (Instructions Page 38)

SEE ATTACHMENT 3

Indicate which attachments are included with the Administrative Report. Check all that apply:

- ☐ Lease agreement or deed recorded easement, if the land where the treatment facility is located or the effluent disposal site are not owned by the applicant or co-applicant.
- ☒ Original full-size USGS Topographic Map with the following information:
  - Applicant's property boundary
  - Treatment facility boundary
  - Labeled point of discharge for each discharge point (TPDES only)
  - Highlighted discharge route for each discharge point (TPDES only)
  - Onsite sewage sludge disposal site (if applicable)
  - Effluent disposal site boundaries (TLAP only)
  - New and future construction (if applicable)

- 1 mile radius information
  - 3 miles downstream information (TPDES only)
  - All ponds.
- ☐ Attachment 1 for Individuals as co-applicants
- ☒ Other Attachments. Please specify: Attachment 1 - Copy of check, Att 2 - Core Data, Att 3 - USGS map, Att4 - Land owner's map, Att 5 - Original photos, Att 6 - Buffer zone map, Att 7 - USGS map (SPIF)

**Section 14. Signature Page (Instructions Page 39)**

*If co-applicants are necessary, each entity must submit an original, separate signature page.*

Permit Number: WQ0010749-007

Applicant: San Antonio River Authority

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code § 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Suzanne B. Scott

Signatory title: General Manager

Signature: \_\_\_\_\_

(Use blue ink)

Date: \_\_\_\_\_

8 / 15 / 19

Subscribed and Sworn to before me by the said Suzanne B. Scott

on this 15<sup>th</sup> day of August, 2019.

My commission expires on the 12<sup>th</sup> day of September, 2020.

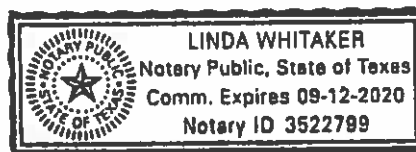
Linda Whitaker

Notary Public

[SEAL]

Bexar

County, Texas



**DOMESTIC ADMINISTRATIVE REPORT 1.1**

The following information is required for new and amendment applications.

**Section 1. Affected Landowner Information (Instructions Page 41)**

SEE ATTACHMENT 4

- A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:
- ☒ The applicant's property boundaries
  - ☒ The facility site boundaries within the applicant's property boundaries
  - ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
  - ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
  - ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
  - ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
  - ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
  - ☐ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
  - ☐ The property boundaries of all landowners surrounding the effluent disposal site
  - ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
  - ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located
- B. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.
- C. Indicate by a check mark in which format the landowners list is submitted:
- ☐ Readable/Writeable CD
  - ☒ Four sets of labels
- D. Provide the source of the landowners' names and mailing addresses: Bexar County Appraisal District
- E. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

## Section 2. Original Photographs (Instructions Page 44)

SEE ATTACHMENT 5

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

- ☒ At least one original photograph of the new or expanded treatment unit location
- ☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☐ At least one photograph of the existing/proposed effluent disposal site
- ☒ A plot plan or map showing the location and direction of each photograph

## Section 3. Buffer Zone Map (Instructions Page 44)

SEE ATTACHMENT 6

A. Buffer zone map. Provide a buffer zone map on 8.5 x 11-inch paper with all of the following information. The applicant's property line and the buffer zone line may be distinguished by using dashes or symbols and appropriate labels.

- The applicant's property boundary;
- The required buffer zone; and
- Each treatment unit; and
- The distance from each treatment unit to the property boundaries.

B. Buffer zone compliance method. Indicate how the buffer zone requirements will be met. Check all that apply.

- ☒ Ownership
- ☐ Restrictive easement
- ☐ Nuisance odor control
- ☐ Variance

C. Unsuitable site characteristics. Does the facility comply with the requirements regarding unsuitable site characteristic found in 30 TAC § 309.13(a) through (d)?

☒ Yes ☐ No

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**  
**SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)**

**FOR AGENCIES REVIEWING DOMESTIC  
TPDES WASTEWATER PERMIT APPLICATIONS**

**TCEQ USE ONLY:**Application type: ☐ Renewal ☐ Major Amendment ☐ Minor Amendment ☐ New

County: \_\_\_\_\_ Segment Number: \_\_\_\_\_

Admin Complete Date: \_\_\_\_\_

## Agency Receiving SPIF:

☐ Texas Historical Commission☐ U.S. Fish and Wildlife☐ Texas Parks and Wildlife Department☐ U.S. Army Corps of Engineers**This form applies to TPDES permit applications only.** (Instructions, Page 53)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

**Do not refer to a response of any item in the permit application form.** Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee: San Antonio River Authority

Permit No. WQ00 10749-007EPA ID No. TX 0129861

Address of the project (or a location description that includes street/highway, city/vicinity, and county):

2095 N GRAYTOWN RD, SAINT HEDWIG, TX 78152



Martinez IV WWTP

WQ0010749-007

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Daniel Flores

Credential (P.E, P.G., Ph.D., etc.):

Title: Utilities Operations Superintendent

Mailing Address: 100 E. Guenther Street

City, State, Zip Code: San Antonio, TX 78204

Phone No.: (210) 302-4200 Ext.:

Fax No.: (210) 661-9324

E-mail Address: danielf@sara-tx.org

2. List the county in which the facility is located: Bexar
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

Discharge to Martinez Creek; thence to Lower Cibolo Creek in Segment No. 1902 of the San Antonio River Basin.

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

SEE ATTACHMENT 7

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design

☒ Additional phases of development that are planned for the future

☐ Sealing caves, fractures, sinkholes, other karst features

☐ Disturbance of vegetation or wetlands

6. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

N/A

7. Describe existing disturbances, vegetation, and land use:

N/A

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

8. List construction dates of all buildings and structures on the property:

March 2019

9. Provide a brief history of the property, and name of the architect/builder, if known.

N/A



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
DOMESTIC WASTEWATER PERMIT APPLICATION

**DOMESTIC TECHNICAL REPORT 1.0**

The Following Is Required For All Applications  
Renewal, New, And Amendment

**Section 1. Permitted or Proposed Flows (Instructions Page 51)**

**A. Existing/Interim I Phase**

Design Flow (MGD): 0.25

2-Hr Peak Flow (MGD): 1.0

Estimated construction start date: N/A

Estimated waste disposal start date: 3/30/2019

**B. Interim II Phase**

Design Flow (MGD): 0.91

2-Hr Peak Flow (MGD): 3.64

Estimated construction start date: 2020

Estimated waste disposal start date: 2021

**C. Final Phase**

Design Flow (MGD): 2.0

2-Hr Peak Flow (MGD): 8.0

Estimated construction start date: 2025

Estimated waste disposal start date: 2027

**D. Current operating phase: Existing/Interim I Phase**

Provide the startup date of the facility: 04/02/2019

**Section 2. Treatment Process (Instructions Page 51)**

**A. Treatment process description**

Provide a detailed description of the treatment process. **Include the type of**

**treatment plant, mode of operation, and all treatment units.** Start with the plant's head works and finish with the point of discharge. Include all sludge processing and drying units. **If more than one phase exists or is proposed in the permit, a description of *each phase* must be provided.** Process description:

See attachment 8

Port or pipe diameter at the discharge point, in inches: 30 inches

#### **B. Treatment Units**

In Table 1.0(1), provide the treatment unit type, the number of units, and dimensions (length, width, depth) of each treatment unit, accounting for *all* phases of operation.

***Table 1.0(1) - Treatment Units***

<b>Treatment Unit Type</b>	<b>Number of Units</b>	<b>Dimensions (L x W x D)</b>
<b>See attachment 9</b>		

#### **C. Process flow diagrams**

Provide flow diagrams for the existing facilities and **each** proposed phase of construction.

**Attachment: 10**

### Section 3. Site Drawing (Instructions Page 52)

Provide a site drawing for the facility that shows the following:

- The boundaries of the treatment facility;
- The boundaries of the area served by the treatment facility;
- If land disposal of effluent, the boundaries of the disposal site and all storage/holding ponds; and
- If sludge disposal is authorized in the permit, the boundaries of the land application or disposal site.

#### Attachment: 11

Provide the name and a description of the area served by the treatment facility.

Martinez IV Wastewater Treatment Facility serving East Bexar County

### Section 4. Unbuilt Phases (Instructions Page 52)

Is the application for a renewal of a permit that contains an unbuilt phase or phases?

Yes ☒ No ☐

If yes, does the existing permit contain a phase that has not been constructed within five years of being authorized by the TCEQ?

Yes ☒ No ☐

If yes, provide a detailed discussion regarding the continued need for the unbuilt phase. Failure to provide sufficient justification may result in the Executive Director recommending denial of the unbuilt phase or phases.

New developments are being added within the treatment plant's service area and population growth is projected to increase beyond the plant's current capacity. The newly built plant average daily flow after the fourth month of operation is 112,007 gallons per day. This average does not reflect water reuse, which drives the treated gallons per day higher than the actual discharge. Flow is increasing more rapidly than initially projected.

### Section 5. Closure Plans (Instructions Page 53)

Have any treatment units been taken out of service permanently, or will any units be taken out of service in the next five years?

Yes ☐ No ☒

If yes, was a closure plan submitted to the TCEQ?

Yes ☐ No ☒

If yes, provide a brief description of the closure and the date of plan approval.

N/A

### Section 6. Permit Specific Requirements (Instructions Page 53)

For applicants with an existing permit, check the *Other Requirements* or *Special Provisions* of the permit.

#### A. Summary transmittal

Have plans and specifications been approved for the existing facilities and each proposed phase?

Yes ☐ No ☒

If yes, provide the date(s) of approval for each phase: N/A

Provide information, including dates, on any actions taken to meet a requirement or provision pertaining to the submission of a summary transmittal letter. Provide a copy of an approval letter from the TCEQ, if applicable.

N/A

#### B. Buffer zones

Have the buffer zone requirements been met?

Yes ☒ No ☐

Provide information below, including dates, on any actions taken to meet the conditions of the buffer zone. If available, provide any new documentation relevant to maintaining the buffer zones.

N/A

**C. Other actions required by the current permit**

Does the *Other Requirements* or *Special Provisions* section in the existing permit require submission of any other information or other required actions? Examples include Notification of Completion, progress reports, soil monitoring data, etc.

Yes ☒ No ☐

If yes, provide information below on the status of any actions taken to meet the conditions of an *Other Requirement* or *Special Provision*.

See comments on attachment 12 A, B, and C

**D. Grit and grease treatment**

***1. Acceptance of grit and grease waste***

Does the facility have a grit and/or grease processing facility onsite that treats and decants or accepts transported loads of grit and grease waste that are discharged directly to the wastewater treatment plant prior to any treatment?

Yes ☐ No ☒

If No, stop here and continue with Subsection E. Stormwater Management.

***2. Grit and grease processing***

Describe below how the grit and grease waste is treated at the facility. In your description, include how and where the grit and grease is introduced to the treatment works and how it is separated or processed. Provide a flow diagram showing how grit and grease is processed at the facility.

### **3. Grit disposal**

Does the facility have a Municipal Solid Waste (MSW) registration or permit for grit disposal?

Yes ☐ No ☐

If **No**, contact the TCEQ Municipal Solid Waste team at 512-239-0000. Note: A registration or permit is required for grit disposal. Grit shall not be combined with treatment plant sludge. See the instruction booklet for additional information on grit disposal requirements and restrictions.

Describe the method of grit disposal.

### **4. Grease and decanted liquid disposal**

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-0000.

Describe how the decant and grease are treated and disposed of after grit separation.

## **E. Stormwater management**

### **1. Applicability**

Does the facility have a design flow of 1.0 MGD or greater in any phase?

Yes ☒ No ☐

Does the facility have an approved pretreatment program, under 40 CFR Part 403?



Yes ☐ No ☒

If no to both of the above, then skip to Subsection F, Other Wastes Received.

## **2. MSGP coverage**

Is the stormwater runoff from the WWTP and dedicated lands for sewage disposal currently permitted under the TPDES Multi-Sector General Permit (MSGP), TXR050000?

Yes ☐ No ☒

If yes, please provide MSGP Authorization Number and skip to Subsection F, Other Wastes Received:

TXR05 or TXRNE

If no, do you intend to seek coverage under TXR050000?

Yes ☒ No ☐

## **3. Conditional exclusion**

Alternatively, do you intend to apply for a conditional exclusion from permitting based TXR050000 (Multi Sector General Permit) Part II B.2 or TXR050000 (Multi Sector General Permit) Part V, Sector T 3(b)?

Yes ☐ No ☒

If yes, please explain below then proceed to Subsection F, Other Wastes Received:

N/A

## **4. Existing coverage in individual permit**

Is your stormwater discharge currently permitted through this individual TPDES or TLAP permit?

Yes ☐ No ☒

If yes, provide a description of stormwater runoff management practices at the site that are authorized in the wastewater permit then skip to Subsection F, Other Wastes Received.

N/A

### **5. Zero stormwater discharge**

Do you intend to have no discharge of stormwater via use of evaporation or other means?

Yes ☐ No ☒

If yes, explain below then skip to Subsection F. Other Wastes Received.

N/A

Note: If there is a potential to discharge any stormwater to surface water in the state as the result of any storm event, then permit coverage is required under the MSGP or an individual discharge permit. This requirement applies to all areas of facilities with treatment plants or systems that treat, store, recycle, or reclaim domestic sewage, wastewater or sewage sludge (including dedicated lands for sewage sludge disposal located within the onsite property boundaries) that meet the applicability criteria of above. You have the option of obtaining coverage under the MSGP for direct discharges, (recommended), or obtaining coverage under this individual permit.

### **6. Request for coverage in individual permit**

Are you requesting coverage of stormwater discharges associated with your treatment plant under this individual permit?

Yes ☐ No ☒

If yes, provide a description of stormwater runoff management practices at the site for which you are requesting authorization in this individual wastewater permit and describe whether you intend to comingle this discharge with your treated effluent or discharge it via a separate dedicated stormwater outfall. Please also indicate if you intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

N/A

Note: Direct stormwater discharges to waters in the state authorized through this individual permit will require the development and implementation of a stormwater pollution prevention plan (SWPPP) and will be subject to additional monitoring and reporting requirements. Indirect discharges of stormwater via headworks recycling will require compliance with all individual permit requirements including 2-hour peak flow limitations. All stormwater discharge authorization requests will require additional information during the technical review of your application.

**F. Discharges to the Lake Houston Watershed**

Does the facility discharge in the Lake Houston watershed?

Yes ☐ No ☒

If yes, a Sewage Sludge Solids Management Plan is required. See Example 5 in the instructions.

**G. Other wastes received including sludge from other WWTPs and septic waste**

***1. Acceptance of sludge from other WWTPs***

Does the facility accept or will it accept sludge from other treatment plants at the facility site?

Yes ☐ No ☒

**If yes, attach sewage sludge solids management plan. See Example 5 of the instructions.**

In addition, provide the date that the plant started accepting sludge or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub> concentration of the sludge, and the design BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

## **2. Acceptance of septic waste**

Is the facility accepting or will it accept septic waste?

Yes ☐ No ☒

If yes, does the facility have a Type V processing unit?

Yes ☐ No ☐

If yes, does the unit have a Municipal Solid Waste permit?

Yes ☐ No ☐

If yes to any of the above, provide a the date that the plant started accepting septic waste, or is anticipated to start accepting septic waste, an estimate of monthly septic waste acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub> concentration of the septic waste, and the design BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

## **3. Acceptance of other wastes (not including septic, grease, grit, or RCRA, CERCLA or as discharged by IUs listed in Worksheet 6)**

Is the facility accepting or will it accept wastes that are not domestic in nature excluding the categories listed above?

Yes ☐ No ☒

If yes, provide the date that the plant started accepting the waste, an estimate how much waste is accepted on a monthly basis (gallons or millions of gallons), a description of the entities generating the waste, and any distinguishing chemical or other physical characteristic of the waste. Also note if this information has or has not changed since the last permit action.

N/A

## Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 58)

Is the facility in operation?

Yes ☒ No ☐

If no, this section is not applicable. Proceed to Section 8.

If yes, provide effluent analysis data for the listed pollutants. *Wastewater treatment facilities* complete Table 1.0(2). *Water treatment facilities* discharging filter backwash water, complete Table 1.0(3).

Note: The sample date must be within 1 year of application submission.

**Table 1.0(2) - Pollutant Analysis for Wastewater Treatment Facilities**

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD <sub>5</sub> , mg/l	2	2	1	COMP	4/24/19, 7:30 AM
Total Suspended Solids, mg/l	2	2	1	COMP	4/24/19, 7:30 AM
Ammonia Nitrogen, mg/l	0.3	0.3	1	COMP	4/24/19, 7:30 AM
Nitrate Nitrogen, mg/l	13.5	13.5	1	COMP	4/24/19, 7:30 AM
Total Kjeldahl Nitrogen, mg/l	2	2	1	COMP	4/24/19, 7:30 AM
Sulfate, mg/l	205	205	1	COMP	4/24/19, 7:30 AM
Chloride, mg/l	317	317	1	COMP	4/24/19, 7:30 AM
Total Phosphorus, mg/l	3.23	3.23	1	COMP	4/24/19, 7:30 AM
pH, standard units	7.34 MIN	7.89 MAX	7	GRAB	MAY 2019
Dissolved Oxygen*, mg/l	4.23 MIN	6.62 MAX	16	GRAB	MAY 2019
Chlorine Residual, mg/l	N/A	N/A	N/A	N/A	N/A
<i>E.coli</i> (CFU/100ml) freshwater	1	5	23	GRAB	MAY 2019
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	1052	1052	1	COMP	4/24/19, 7:30 AM
Electrical Conductivity, umohs/cm, †	1928	1928	1	COMP	4/24/19, 7:30 AM

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Oil & Grease, mg/l	5	5	1	GRAB	4/24/19, 8:35 AM
Alkalinity (CaCO <sub>3</sub> )*, mg/l	184	184	1	COMP	4/24/19, 7:30 AM

**SEE ATTACHMENT 13**

\*TPDES permits only

†TLAP permits only

***Table 1.0(3) - Pollutant Analysis for Water Treatment Facilities***

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Total Suspended Solids, mg/l			N/A		
Total Dissolved Solids, mg/l			N/A		
pH, standard units			N/A		
Fluoride, mg/l			N/A		
Aluminum, mg/l			N/A		
Alkalinity (CaCO <sub>3</sub> ), mg/l			N/A		

## **Section 8. Facility Operator (Instructions Page 60)**

Facility Operator Name: Clairissa Flores

Facility Operator's License Classification and Level: Class B Wastewater

Facility Operator's License Number: WW0058136

## **Section 9. Sewage Sludge Management and Disposal (Instructions Page 60)**

### **A. Sludge disposal method**

Identify the current or anticipated sludge disposal method or methods from the following list. Check all that apply.

☒ Permitted landfill

☐ Permitted or Registered land application site for beneficial use

- ☐ Land application for beneficial use authorized in the wastewater permit
- ☐ Permitted sludge processing facility
- ☐ Marketing and distribution as authorized in the wastewater permit
- ☐ Composting as authorized in the wastewater permit
- ☐ Permitted surface disposal site (sludge monofill)
- ☐ Surface disposal site (sludge monofill) authorized in the wastewater permit
- ☒ Transported to another permitted wastewater treatment plant or permitted sludge processing facility. If you selected this method, a written statement or contractual agreement from the wastewater treatment plant or permitted sludge processing facility accepting the sludge must be included with this application. **SEE ATTACHMENT 14**
- ☒ Other: Hauled to permitted compost facility for compost and sale

**B. Sludge disposal site**

Disposal site name: Republic, Tessman Rd Landfill/Gardenville-Martinez II WWTP Compost Facility/Martinez II WWTP/Upper Martinez WWTP

TCEQ permit or registration number: 1410/WQ0010749-004/WQ0010749-004/WQ0010749-003

County where disposal site is located: Bexar/Bexar/Bexar/Bexar

**C. Sludge transportation method**

Method of transportation (truck, train, pipe, other): Truck/Trailer

Name of the hauler: San Antonio River Authority

Hauler registration number: 21858

Sludge is transported as a:

Liquid ☒      semi-liquid ☐      semi-solid ☐      solid ☒

**Section 10. Permit Authorization for Sewage Sludge Disposal**

## (Instructions Page 60)

### A. Beneficial use authorization

Does the existing permit include authorization for land application of sewage sludge for beneficial use?

Yes ☐ No ☒

If yes, are you requesting to continue this authorization to land apply sewage sludge for beneficial use?

Yes ☐ No ☐

If yes, is the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)** attached to this permit application (see the instructions for details)?

Yes ☐ No ☐

### B. Sludge processing authorization

Does the existing permit include authorization for any of the following sludge processing, storage or disposal options?

Sludge Composting Yes ☐ No ☒

Marketing and Distribution of sludge Yes ☐ No ☒

Sludge Surface Disposal or Sludge Monofill Yes ☐ No ☒

Temporary storage in sludge lagoons Yes ☐ No ☒

If yes to any of the above sludge options and the applicant is requesting to continue this authorization, is the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)** attached to this permit application?

Yes ☐ No ☐

## Section 11. Sewage Sludge Lagoons (Instructions Page 61)

Does this facility include sewage sludge lagoons?

Yes ☐ No ☒

If yes, complete the remainder of this section. If no, proceed to Section 12.

### A. Location information

The following maps are required to be submitted as part of the application. For each map, provide the Attachment Number.

- Original General Highway (County) Map:



**Attachment:**

- USDA Natural Resources Conservation Service Soil Map:

**Attachment:**

- Federal Emergency Management Map:

**Attachment:**

- Site map:

**Attachment:**

Discuss in a description if any of the following exist within the lagoon area.  
Check all that apply.

- ☐ Overlap a designated 100-year frequency flood plain
- ☐ Soils with flooding classification
- ☐ Overlap an unstable area
- ☐ Wetlands
- ☐ Located less than 60 meters from a fault
- ☐ None of the above

**Attachment:**

If a portion of the lagoon(s) is located within the 100-year frequency flood plain, provide the protective measures to be utilized including type and size of protective structures:

**B. Temporary storage information**

Provide the results for the pollutant screening of sludge lagoons. These results are in addition to pollutant results in Section 7 of Technical Report 1.0.

Nitrate Nitrogen, mg/kg:

Total Kjeldahl Nitrogen, mg/kg:

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg:

Phosphorus, mg/kg:

Potassium, mg/kg:

pH, standard units:

Ammonia Nitrogen mg/kg:

Arsenic:

Cadmium:

Chromium:

Copper:

Lead:

Mercury:

Molybdenum:

Nickel:

Selenium:

Zinc:

Total PCBs:

Provide the following information:

Volume and frequency of sludge to the lagoon(s):

Total dry tons stored in the lagoons(s) per 365-day period:

Total dry tons stored in the lagoons(s) over the life of the unit:

### **C. Liner information**

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec?

Yes ☐ No ☐

If yes, describe the liner below. Please note that a liner is required.

--

### **D. Site development plan**

Provide a detailed description of the methods used to deposit sludge in the lagoon(s):

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)

**Attachment:**

- Copy of the closure plan

**Attachment:**

- Copy of deed recordation for the site

**Attachment:**

- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

**Attachment:**

- Description of the method of controlling infiltration of groundwater and surface water from entering the site

**Attachment:**

- Procedures to prevent the occurrence of nuisance conditions

**Attachment:**

#### **E. Groundwater monitoring**

Is groundwater monitoring currently conducted at this site, or are any wells available for groundwater monitoring, or are groundwater monitoring data otherwise available for the sludge lagoon(s)?

Yes ☐ No ☐

If groundwater monitoring data are available, provide a copy. Provide a profile of soil types encountered down to the groundwater table and the depth to the shallowest groundwater as a separate attachment.

**Attachment:**

## **Section 12. Authorizations/Compliance/Enforcement (Instructions Page 63)**

#### **A. Additional authorizations**

Does the permittee have additional authorizations for this facility, such as reuse authorization, sludge permit, etc?

Yes ☐ No ☒

If yes, provide the TCEQ authorization number and description of the authorization:

N/A

**B. Permittee enforcement status**

Is the permittee currently under enforcement for this facility?

Yes ☐ No ☒

Is the permittee required to meet an implementation schedule for compliance or enforcement?

Yes ☐ No ☒

If yes to either question, provide a brief summary of the enforcement, the implementation schedule, and the current status:

N/A

**Section 13. RCRA/CERCLA Wastes (Instructions Page 63)**

**A. RCRA hazardous wastes**

Has the facility received in the past three years, does it currently receive, or will it receive RCRA hazardous waste?

Yes ☐ No ☒

**B. Remediation activity wastewater**

Has the facility received in the past three years, does it currently receive, or will it receive CERCLA wastewater, RCRA remediation/corrective action wastewater or other remediation activity wastewater?

Yes ☐ No ☒

**C. Details about wastes received**

If yes to either Subsection A or B above, provide detailed information concerning these wastes with the application.

Attachment: N/A

#### Section 14. Laboratory Accreditation (Instructions Page 64)

All laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*, which includes the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements:

- The laboratory is an in-house laboratory and is:
  - periodically inspected by the TCEQ; or
  - located in another state and is accredited or inspected by that state; or
  - performing work for another company with a unit located in the same site; or
  - performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review *30 TAC Chapter 25* for specific requirements.

The following certification statement shall be signed and submitted with every application. See the *Signature Page* section in the Instructions, for a list of designated representatives who may sign the certification.

#### CERTIFICATION:

I certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*.

Printed Name: Suzanne B. Scott

Title: General Manager

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

8/15/19

## DOMESTIC TECHNICAL REPORT 1.1

The following is required for new and amendment applications

### Section 1. Justification for Permit (Instructions Page 66)

#### A. Justification of permit need

Provide a detailed discussion regarding the need for any phase(s) not currently permitted. Failure to provide sufficient justification may result in the Executive Director recommending denial of the proposed phase(s) or permit.

A master plan for Martinez IV WWTP was conducted by Freese and Nichols to evaluate the capacity of the existing wastewater system and recommend a Capital Improvement Plan. The projected growth rates were calculated using historical data, and future lands use plans provided by Bexar County, the City of Schertz, and San Antonio River Authority. Growth for the area is projected to increase 65% in 2019, 39% in 2020, 28% in 2021, 22% in 2022, 18% in 2023, 15% in 2024, and 13% in 2025. Flow is increasing more rapidly than initially projected, and interim II phase and final build out construction dates have already been moved up, with anticipation of needing buildout capacity by 2027.

#### B. Regionalization of facilities

Provide the following information concerning the potential for regionalization of domestic wastewater treatment facilities:

##### 1. Municipally incorporated areas

If the applicant is a city, then Item 1 is not applicable. Proceed to Item 2 Utility CCN areas.

Is any portion of the proposed service area located in an incorporated city?

Yes ☒ No ☐ Not Applicable ☐

If yes, within the city limits of: City of Schertz

If yes, attach correspondence from the city.

Attachment: 15

If consent to provide service is available from the city, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the city versus the cost of the proposed facility or expansion attached.

Attachment: Facility already constructed and in operation

##### 2. Utility CCN areas

Is any portion of the proposed service area located inside another utility's CCN area?

Yes ☒ No ☐

If yes, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the CCN facilities versus the cost of the proposed facility or expansion.

Attachment: 16

### **3. Nearby WWTPs or collection systems**

Are there any domestic permitted wastewater treatment facilities or collection systems located within a three-mile radius of the proposed facility?

Yes ☐ No ☒

If yes, attach a list of these facilities that includes the permittee's name and permit number, and an area map showing the location of these facilities.

Attachment: N/A

If yes, attach copies of your certified letters to these facilities and their response letters concerning connection with their system.

Attachment: N/A

Does a permitted domestic wastewater treatment facility or a collection system located within three (3) miles of the proposed facility currently have the capacity to accept or is willing to expand to accept the volume of wastewater proposed in this application?

Yes ☐ No ☐

If yes, attach an analysis of expenditures required to connect to a permitted wastewater treatment facility or collection system located within 3 miles versus the cost of the proposed facility or expansion.

Attachment:

## **Section 2. Organic Loading (Instructions Page 67)**

Is this facility in operation?

Yes ☒ No ☐

If no, proceed to Item B, Proposed Organic Loading.

If yes, provide organic loading information in Item A, Current Organic Loading

**A. Current organic loading**

Facility Design Flow (flow being requested in application): 0.25 MGD

Average Influent Organic Strength or BOD<sub>5</sub> Concentration in mg/l: 200

Average Influent Loading (lbs/day = total average flow X average BOD<sub>5</sub> conc. X 8.34): 417

Provide the source of the average organic strength or BOD<sub>5</sub> concentration.

Estimate

**B. Proposed organic loading**

This table must be completed if this application is for a facility that is not in operation or if this application is to request an increased flow that will impact organic loading.

***Table 1.1(1) - Design Organic Loading***

Source	Total Average Flow (MGD)	Influent BOD <sub>5</sub> Concentration (mg/l)
Municipality	N/A	
Subdivision		
Trailer park - transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park,		



Source	Total Average Flow (MGD)	Influent BOD <sub>5</sub> Concentration (mg/l)
overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources		
AVERAGE BOD <sub>5</sub> from all sources		

### Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 68)

#### A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 10

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 3

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4.0

Other: E. coli 126 MPN/100 mL (geometric mean), pH 6.0 MIN - 9.0 MAX standard units

#### **B. Interim II Phase Design Effluent Quality**

Biochemical Oxygen Demand (5-day), mg/l: 10

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 3

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4.0

Other: E. coli 126 MPN/100 mL (geometric mean), pH 6.0 MIN - 9.0 MAX standard units

#### **C. Final Phase Design Effluent Quality**

Biochemical Oxygen Demand (5-day), mg/l: 10

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 3

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4.0

Other: E. coli 126 MPN/100 mL (geometric mean), pH 6.0 MIN - 9.0 MAX standard units

#### **D. Disinfection Method**

Identify the proposed method of disinfection.

- ☐ Chlorine: \_\_\_\_\_ mg/l after  
minutes detention time at peak flow  
Dechlorination process:
- ☒ Ultraviolet Light: 8.71 seconds contact time at peak flow
- ☐ Other:

### **Section 4. Design Calculations (Instructions Page 68)**

Attach design calculations and plant features for each proposed phase. Example 4 of the instructions includes sample design calculations and plant features.

**Attachment:** 17

## Section 5. Facility Site (Instructions Page 68)

### A. 100-year floodplain

Will the proposed facilities be located above the 100-year frequency flood level?

Yes ☒ No ☐

If **no**, describe measures used to protect the facility during a flood event. Include a site map showing the location of the treatment plant within the 100-year frequency flood level. If applicable, provide the size and types of protective structures.

N/A

Provide the source(s) used to determine 100-year frequency flood plain.

FIRM panel 48029C0455F on SARA Floodplain Viewer an interactive map of FEMA National Flood Hazard Layer (NFHL) Data

For a new or expansion of a facility, will a wetland or part of a wetland be filled?

Yes ☐ No ☒

If **yes**, has the applicant applied for a US Corps of Engineers 404 Dredge and Fill Permit?

Yes ☐ No ☐

If **yes**, provide the permit number:

If **no**, provide the approximate date you anticipate submitting your application to the Corps:

### B. Wind rose

Attach a wind rose. **Attachment:** 18

## Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 69)

### A. Beneficial use authorization

Are you requesting to include authorization to land apply sewage sludge for beneficial use on property located adjacent to the wastewater treatment facility under the wastewater permit?

Yes ☐ No ☒

If yes, attach the completed Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)

**Attachment:** N/A

#### **B. Sludge processing authorization**

Identify the sludge processing, storage or disposal options that will be conducted at the wastewater treatment facility:

- ☐ Sludge Composting
- ☐ Marketing and Distribution of sludge
- ☐ Sludge Surface Disposal or Sludge Monofill

If any of the above sludge options are selected, attach a completed DOMESTIC WASTEWATER PERMIT APPLICATION: SEWAGE SLUDGE TECHNICAL REPORT (TCEQ Form No. 10056).

**Attachment:**

### **Section 7. Sewage Sludge Solids Management Plan (Instructions Page 69)**

Attach a solids management plan to the application.

**Attachment:** 19

The sewage sludge solids management plan must contain the following information:

- Treatment units and processes dimensions and capacities
- Solids generated at 100, 75, 50, and 25 percent of design flow
- Mixed liquor suspended solids operating range at design and projected actual flow
- Quantity of solids to be removed and a schedule for solids removal
- Identification and ownership of the ultimate sludge disposal site
- For facultative lagoons, design life calculations, monitoring well locations and depths, and the ultimate disposal method for the sludge from the facultative lagoon

An example of a sewage sludge solids management plan has been included as Example 5 of the instructions.

# DOMESTIC TECHNICAL REPORT WORKSHEET 2.0

## RECEIVING WATERS

**The following is required for all TPDES permit applications**

## Section 1. Domestic Drinking Water Supply (Instructions Page 73)

Is there a surface water intake for domestic drinking water supply located within 5 miles downstream from the point or proposed point of discharge?

Yes ☐ No ☒

**If yes, provide the following:**

Owner of the drinking water supply:

Distance and direction to the intake:

**Attach a USGS map that identifies the location of the intake.**

**Attachment:**

**Section 2. Discharge into Tidally Affected Waters (Instructions  
Page 73)**

**Does the facility discharge into tidally affected waters?**

Yes ☐ No ☒

If yes, complete the remainder of this section. If no, proceed to Section 3.

### A. Receiving water outfall

Width of the receiving water at the outfall, in feet:

### B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

Yes ☐      No ☐

**If yes, provide the distance and direction from outfall(s).**

--

### C. Sea grasses

Are there any sea grasses within the vicinity of the point of discharge?

Yes ☐ No ☐

If yes, provide the distance and direction from the outfall(s).

--

### Section 3. Classified Segments (Instructions Page 73)

Is the discharge directly into (or within 300 feet of) a classified segment?

Yes ☐ No ☒

If yes, this Worksheet is complete.

If no, complete Sections 4 and 5 of this Worksheet.

### Section 4. Description of Immediate Receiving Waters (Instructions Page 75)

Name of the immediate receiving waters: Martinez Creek

#### A. Receiving water type

Identify the appropriate description of the receiving waters.

- ☒ Stream
- ☐ Freshwater Swamp or Marsh
- ☐ Lake or Pond

Surface area, in acres:

Average depth of the entire water body, in feet:

Average depth of water body within a 500-foot radius of discharge point, in feet:

- ☐ Man-made Channel or Ditch

- ☐ Open Bay
- ☐ Tidal Stream, Bayou, or Marsh
- ☐ Other, specify:

#### B. Flow characteristics

If a stream, man-made channel or ditch was checked above, provide the following. For existing discharges, check one of the following that best characterizes the area *upstream* of the discharge. For new discharges, characterize the area *downstream* of the discharge (check one).

- ☐ Intermittent - dry for at least one week during most years
- ☐ Intermittent with Perennial Pools - enduring pools with sufficient habitat to maintain significant aquatic life uses
- ☒ Perennial - normally flowing

Check the method used to characterize the area upstream (or downstream for new dischargers).

- ☐ USGS flow records
- ☐ Historical observation by adjacent landowners
- ☒ Personal observation
- ☐ Other, specify:

#### C. Downstream perennial confluences

List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point.

Salitrillo Creek

#### D. Downstream characteristics

Do the receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.)?

Yes ☐ No ☒

If yes, discuss how.

**E. Normal dry weather characteristics**

Provide general observations of the water body during normal dry weather conditions.

The stream flows consistently throughout normal dry weather conditions because of the influence of discharge by both the Martinez I and Martinez II WWTP and minor springs found along the banks.

Date and time of observation: July 17, 2019, 1:10 PM

Was the water body influenced by stormwater runoff during observations?

Yes ☒ No ☐

**Section 5. General Characteristics of the Waterbody (Instructions Page 74)**

**A. Upstream influences**

Is the immediate receiving water upstream of the discharge or proposed discharge site influenced by any of the following? Check all that apply.

- |   |  |
|---|--|
| <input type="checkbox"/> Oil field activities           | <input checked="" type="checkbox"/> Urban runoff   |
| <input checked="" type="checkbox"/> Upstream discharges | <input checked="" type="checkbox"/> Agricultural runoff  |
| <input checked="" type="checkbox"/> Septic tanks        | <input checked="" type="checkbox"/> Other(s), specify <u>Martinez I WWTP discharges into Martinez Creek north of IH 10E/US HWY 90 and Martinez II WWTP south of IH 10.</u> |

**B. Waterbody uses**

Observed or evidences of the following uses. Check all that apply.

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Livestock watering    | <input type="checkbox"/> Contact recreation                |
| <input checked="" type="checkbox"/> Irrigation withdrawal | <input checked="" type="checkbox"/> Non-contact recreation |
| <input checked="" type="checkbox"/> Fishing               | <input type="checkbox"/> Navigation                        |



- ☐ Domestic water supply      ☐ Industrial water supply
- ☐ Park activities      ☐ Other(s), specify

**C. Waterbody aesthetics**

Check one of the following that best describes the aesthetics of the receiving water and the surrounding area.

- ☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
- ☒ Natural Area: trees and/or native vegetation; some development evident (from fields, pastures, dwellings); water clarity discolored
- ☐ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
- ☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

## DOMESTIC WORKSHEET 2.1

### STREAM PHYSICAL CHARACTERISTICS

**Required for new applications, major facilities, and applications adding an outfall**

Worksheet 2.1 is not required for discharges to intermittent streams or discharges directly to (or within 300 feet of) a classified segment.

#### Section 1. General Information (Instructions Page 75)

Date of study: May 31, 2007 Time of study: 9:30 AM

Stream name: Martinez Creek

Location: 1961 North Graytown Road, Bexar County, Texas

Type of stream upstream of existing discharge or downstream of proposed discharge (check one).

☒ Perennial

☐ Intermittent with perennial pools

#### Section 2. Data Collection (Instructions Page 75)

Number of stream bends that are well defined: 2

Number of stream bends that are moderately defined: 2

Number of stream bends that are poorly defined: 3

Number of riffles:

Evidence of flow fluctuations (check one):

☒ Minor

☐ moderate

☐ severe

Indicate the observed stream uses and if there is evidence of flow fluctuations or channel obstruction/modification.

There were minor amounts of woody debris noted within the 0.5 mile reach of the channel. There were no major channel obstructions or modifications noted.

#### Stream transects

In the table below, provide the following information for each transect downstream of the existing or proposed discharges. Use a separate row for each transect.

**Table 2.1(1) - Stream Transect Records**

<b>Stream type at transect</b> Select riffle, run, glide, or pool. See Instructions, Definitions section.	<b>Transect location</b>	<b>Water surface width (ft)</b>	<b>Stream depths (ft)</b> at 4 to 10 points along each transect from the channel bed to the water surface. Separate the measurements with commas.
glide	Outfall	15	0.05, 2.50, 2.75, 2.20, 3.35, 2.40, 2.70, 2.65, 2.90, 2.20
run	0.18 miles	7	0.50, 1.75, 1.70, 1.45, 1.25, 1.30, 1.13, 1.10, 0.60, 0.01
glide	0.10 miles	7	0.50, 2.17, 2.10, 2.20, 2.35, 2.22, 2.57, 2.90, 0.95, 0.15
glide	0.22 miles	11	1.30, 1.15, 1.21, 1.40, 1.45, 1.51, 1.50, 1.71, 1.74, 0.30
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			

### **Section 3. Summarize Measurements (Instructions Page 76)**

Streambed slope of entire reach, from USGS map in feet/feet: 0.00378

Approximate drainage area above the most downstream transect (from USGS map or county highway map, in square miles): 26.86

Length of stream evaluated, in feet: 2,640

Number of lateral transects made: 4

Average stream width, in feet: 10

Average stream depth, in feet: 1.578

Average stream velocity, in feet/second: 0.6395

Instantaneous stream flow, in cubic feet/second: 1.50

Indicate flow measurement method (type of meter, floating chip timed over a fixed distance, etc.): FlowTracker

Size of pools (large, small, moderate, none): None

Maximum pool depth, in feet: N/A

## DOMESTIC WORKSHEET 4.0

### POLLUTANT ANALYSES REQUIREMENTS\*

The following is required for facilities with a permitted or proposed flow of 1.0 MGD or greater, facilities with an approved pretreatment program, or facilities classified as a major facility. See instructions for further details.

This worksheet is not required for minor amendments without renewal

#### Section 1. Toxic Pollutants (Instructions Page 87)

For pollutants identified in Table 4.0(1), indicate the type of sample.

Grab ☒

Composite ☒

Date and time sample(s) collected: 4/24/19 @ 0730 and 0835

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrylonitrile	<50		1	50
Aldrin	<0.01		1	0.01
Aluminum	24		1	2.5
Anthracene	<10		1	10
Antimony	<5		1	5
Arsenic	0.8		1	0.5
Barium	44		1	3
Benzene	<10		1	10
Benzidine	<50		1	50
Benzo(a)anthracene	<5		1	5

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Benzo(a)pyrene	<5		1	5
Bis(2-chloroethyl)ether	<10		1	10
Bis(2-ethylhexyl)phthalate	<10		1	10
Bromodichloromethane	<10		1	10
Bromoform	<10		1	10
Cadmium	1		1	1
Carbon Tetrachloride	<2		1	2
Carbaryl	<5		1	5
Chlordane*	<0.2		1	0.2
Chlorobenzene	<10		1	10
Chlorodibromomethane	<10		1	10
Chloroform	<10		1	10
Chlorpyrifos	<0.05		1	0.05
Chromium (Total)	<3		1	3
Chromium (Tri) (*1)	<3		1	N/A
Chromium (Hex)	<3		1	3
Copper	4		1	2
Chrysene	<5		1	5
p-Chloro-m-Cresol	<10		1	10
4,6-Dinitro-o-Cresol	<50		1	50
p-Cresol	<10		1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Cyanide (*2)	<10		1	10
4,4'- DDD	<0.1		1	0.1
4,4'- DDE	<0.1		1	0.1
4,4'- DDT	<0.02		1	0.02
2,4-D	<0.7		1	0.7
Demeton (O and S)	<0.05		1	0.20
Diazinon	<0.05		1	0.5/0.1
1,2-Dibromoethane	<10		1	10
m-Dichlorobenzene	<10		1	10
o-Dichlorobenzene	<10		1	10
p-Dichlorobenzene	<10		1	10
3,3'-Dichlorobenzidine	<5		1	5
1,2-Dichloroethane	<10		1	10
1,1-Dichloroethylene	<10		1	10
Dichloromethane	<20		1	20
1,2-Dichloropropane	<10		1	10
1,3-Dichloropropene	<10		1	10
Dicofol	<0.04		1	1
Dieldrin	<0.02		1	0.02
2,4-Dimethylphenol	<10		1	10
Di-n-Butyl Phthalate	<10		1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Diuron	<0.09		1	0.09
Endosulfan I (alpha)	<0.01		1	0.01
Endosulfan II (beta)	<0.02		1	0.02
Endosulfan Sulfate	<0.1		1	0.1
Endrin	<0.02		1	0.02
Ethylbenzene	<10		1	10
Fluoride	260		1	500
Guthion	<0.05		1	0.1
Heptachlor	<0.01		1	0.01
Heptachlor Epoxide	<0.01		1	0.01
Hexachlorobenzene	<5		1	5
Hexachlorobutadiene	<10		1	10
Hexachlorocyclohexane (alpha)	<0.05		1	0.05
Hexachlorocyclohexane (beta)	<0.05		1	0.05
gamma-Hexachlorocyclohexane (Lindane)	<0.05		1	0.05
Hexachlorocyclopentadiene	<10		1	10
Hexachloroethane	<20		1	20
Hexachlorophene	<10		1	10
Lead	<0.5		1	0.5
Malathion	<0.05		1	0.1



Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Mercury	<0.005		1	0.005
Methoxychlor	<0.01		1	2
Methyl Ethyl Ketone	<50		1	50
Mirex	<0.01		1	0.02
Nickel	<2		1	2
Nitrate-Nitrogen	13,500		1	100
Nitrobenzene	<10		1	10
N-Nitrosodiethylamine	<20		1	20
N-Nitroso-di-n-Butylamine	<20		1	20
Nonylphenol	<333		1	333
Parathion (ethyl)	<0.05		1	0.1
Pentachlorobenzene	<20		1	20
Pentachlorophenol	<5		1	5
Phenanthrene	<10		1	10
Polychlorinated Biphenyls (PCB's) (*3)	<0.2		1	0.2
Pyridine	<20		1	20
Selenium	<5		1	5
Silver	<0.5		1	0.5
1,2,4,5-Tetrachlorobenzene	<20		1	20
1,1,2,2-Tetrachloroethane	<10		1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Tetrachloroethylene	<10		1	10
Thallium	<0.5		1	0.5
Toluene	<10		1	10
Toxaphene	<0.3		1	0.3
2,4,5-TP (Silvex)	<0.3		1	0.3
Tributyltin (see instructions for explanation)	N/A		1	0.01
1,1,1-Trichloroethane	<10		1	10
1,1,2-Trichloroethane	<10		1	10
Trichloroethylene	<10		1	10
2,4,5-Trichlorophenol	<50		1	50
TTM (Total Trihalomethanes)	<10		1	10
Vinyl Chloride	<10		1	10
Zinc	130		1	5

(\*1) Determined by subtracting hexavalent Cr from total Cr.

(\*2) Cyanide, amenable to chlorination or weak-acid dissociable.

(\*3) The sum of seven PCB congeners 1242, 1254, 1221, 1232, 1248, 1260, and 1016.

## Section 2. Priority Pollutants

For pollutants identified in Tables 4.0(2)A-E, indicate type of sample.

Grab ☒ Composite ☒

Date and time sample(s) collected: 4/24/19 @ 0730 and 0835

Table 4.0(2)A – Metals, Cyanide, Phenols

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Antimony	<5		1	5
Arsenic	0.8		1	0.5
Beryllium	<0.5		1	0.5
Cadmium	1		1	1
Chromium (Total)	<3		1	3
Chromium (Hex)	<3		1	3
Chromium (Tri) (*1)	<3		1	N/A
Copper	4		1	2
Lead	<0.5		1	0.5
Mercury	<0.005		1	0.005
Nickel	<2		1	2
Selenium	<5		1	5
Silver	<0.5		1	0.5
Thallium	<0.5		1	0.5
Zinc	130		1	5
Cyanide (*2)	<10		1	10
Phenols, Total	<10		1	10

(\*1) Determined by subtracting hexavalent Cr from total Cr.

(\*2) Cyanide, amenable to chlorination or weak-acid dissociable

Table 4.0(2)B – Volatile Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrolein	<50		1	50
Acrylonitrile	<50		1	50
Benzene	<10		1	10
Bromoform	<10		1	10
Carbon Tetrachloride	<2		1	2
Chlorobenzene	<10		1	10
Chlorodibromomethane	<10		1	10
Chloroethane	<50		1	50
2-Chloroethylvinyl Ether	<10		1	10
Chloroform	<10		1	10
Dichlorobromomethane [Bromodichloromethane]	<10		1	10
1,1-Dichloroethane	<10		1	10
1,2-Dichloroethane	<10		1	10
1,1-Dichloroethylene	<10		1	10
1,2-Dichloropropane	<10		1	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<10		1	10
1,2-Trans-Dichloroethylene	<10		1	10
Ethylbenzene	<10		1	10
Methyl Bromide	<50		1	50
Methyl Chloride	<50		1	50
Methylene Chloride	<20		1	20
1,1,2,2-Tetrachloroethane	<10		1	10
Tetrachloroethylene	<10		1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Toluene	<10		1	10
1,1,1-Trichloroethane	<10		1	10
1,1,2-Trichloroethane	<10		1	10
Trichloroethylene	<10		1	10
Vinyl Chloride	<10		1	10

Table 4.0(2)C – Acid Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
2-Chlorophenol	<10		1	10
2,4-Dichlorophenol	<10		1	10
2,4-Dimethylphenol	<10		1	10
4,6-Dinitro-o-Cresol	<50		1	50
2,4-Dinitrophenol	<50		1	50
2-Nitrophenol	<20		1	20
4-Nitrophenol	<50		1	50
P-Chloro-m-Cresol	<10		1	10
Pentalchlorophenol	<5		1	5
Phenol	<10		1	10
2,4,6-Trichlorophenol	<10		1	10

Table 4.0(2)D – Base/Neutral Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acenaphthene	<10		1	10
Acenaphthylene	<10		1	10
Anthracene	<10		1	10
Benzo(a)Anthracene	<5		1	5
Benzo(a)Pyrene	<5		1	5
3,4-Benzofluoranthene	<10		1	10
Benzo(ghi)Perylene	<20		1	20
Benzo(k)Fluoranthene	<5		1	5
Bis(2-Chloroethoxy)Methane	<10		1	10
Bis(2-Chloroethyl)Ether	<10		1	10
Bis(2-Chloroisopropyl)Ether	<10		1	10
Bis(2-Ethylhexyl)Phthalate	<10		1	10
4-Bromophenyl Phenyl Ether	<10		1	10
Butyl benzyl Phthalate	<10		1	10
2-Chloronaphthalene	<10		1	10
4-Chlorophenyl phenyl ether	<10		1	10
Chrysene	<5		1	5
Dibenzo(a,h)Anthracene	<5		1	5
1,2-(o)Dichlorobenzene	<10		1	10
1,3-(m)Dichlorobenzene	<10		1	10
1,4-(p)Dichlorobenzene	<10		1	10
3,3-Dichlorobenzidine	<5		1	5
Diethyl Phthalate	<10		1	10
Dimethyl Phthalate	<10		1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Di-n-Butyl Phthalate	<10		1	10
2,4-Dinitrotoluene	<10		1	10
2,6-Dinitrotoluene	<10		1	10
Di-n-Octyl Phthalate	<10		1	10
1,2-Diphenylhydrazine (as Azo- benzene)	<20		1	20
Fluoranthene	<10		1	10
Fluorene	<10		1	10
Hexachlorobenzene	<5		1	5
Hexachlorobutadiene	<10		1	10
Hexachlorocyclo-pentadiene	<10		1	10
Hexachloroethane	<20		1	20
Indeno(1,2,3-cd)pyrene	<5		1	5
Isophorone	<10		1	10
Naphthalene	<10		1	10
Nitrobenzene	<10		1	10
N-Nitrosodimethylamine	<50		1	50
N-Nitrosodi-n-Propylamine	<20		1	20
N-Nitrosodiphenylamine	<20		1	20
Phenanthrene	<10		1	10
Pyrene	<10		1	10
1,2,4-Trichlorobenzene	<10		1	10

Table 4.0(2)E - Pesticides

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Aldrin	<0.01		1	0.01
alpha-BHC (Hexachlorocyclohexane)	<0.05		1	0.05
beta-BHC (Hexachlorocyclohexane)	<0.05		1	0.05
gamma-BHC (Hexachlorocyclohexane)	<0.05		1	0.05
delta-BHC (Hexachlorocyclohexane)	<0.05		1	0.05
Chlordane	<0.2		1	0.2
4,4-DDT	<0.02		1	0.02
4,4-DDE	<0.1		1	0.1
4,4,-DDD	<0.1		1	0.1
Dieldrin	<0.02		1	0.02
Endosulfan I (alpha)	<0.01		1	0.01
Endosulfan II (beta)	<0.02		1	0.02
Endosulfan Sulfate	<0.1		1	0.1
Endrin	<0.02		1	0.02
Endrin Aldehyde	<0.1		1	0.1
Heptachlor	<0.01		1	0.01
Heptachlor Epoxide	<0.01		1	0.01
PCB-1242	<0.2		1	0.2
PCB-1254	<0.2		1	0.2
PCB-1221	<0.2		1	0.2
PCB-1232	<0.2		1	0.2



Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
PCB-1248	<0.2		1	0.2
PCB-1260	<0.2		1	0.2
PCB-1016	<0.2		1	0.2
Toxaphene	<0.3		1	0.3

SEE ATTACHMENT 20

\* For PCBS, if all are non-detects, enter the highest non-detect preceded by a "<".

### Section 3. Dioxin/Furan Compounds

A. Indicate which of the following compounds from may be present in the influent from a contributing industrial user or significant industrial user. Check all that apply.

- ☐ 2,4,5-trichlorophenoxy acetic acid  
Common Name 2,4,5-T, CASRN 93-76-5
- ☐ 2-(2,4,5-trichlorophenoxy) propanoic acid  
Common Name Silvex or 2,4,5-TP, CASRN 93-72-1
- ☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate  
Common Name Erbon, CASRN 136-25-4
- ☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate  
Common Name Ronnel, CASRN 299-84-3
- ☐ 2,4,5-trichlorophenol  
Common Name TCP, CASRN 95-95-4
- ☐ hexachlorophene  
Common Name HCP, CASRN 70-30-4

For each compound identified, provide a brief description of the conditions of its/their presence at the facility.

N/A

B. Do you know or have any reason to believe that 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

Yes ☐ No ☒

If yes, provide a brief description of the conditions for its presence.

N/A

If any of the compounds in Subsection A or B are present, complete Table 4.0(2)F.

For pollutants identified in Table 4.0(2)F, indicate the type of sample.

Grab ☐ Composite ☐

Date and time sample(s) collected:

**TABLE 4.0(2)F - DIOXIN/FURAN COMPOUNDS**

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
2,3,7,8 TCDD	1					10
1,2,3,7,8	0.5					50
2,3,7,8 HxCDDs	0.1					50
1,2,3,4,6,7,8 HpCDD	0.01					50
2,3,7,8 TCDF	0.1					10
1,2,3,7,8 PeCDF	0.05					50
2,3,4,7,8 PeCDF	0.5					50
2,3,7,8 HxCDFs	0.1					50
2,3,4,7,8	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

## DOMESTIC WORKSHEET 6.0

### INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works (POTWs)

#### Section 1. All POTWs (Instructions Page 99)

##### A. Industrial users

Provide the number of each of the following types of industrial users (IUs) that discharge to your POTW and the daily flows from each user. See the Instructions for definitions of Categorical IUs, Significant IUs - non-categorical, and Other IUs.

If there are no users, enter 0 (zero).

Categorical IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Significant IUs - non-categorical:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

##### B. Treatment plant interference

In the past three years, has your POTW experienced treatment plant interference (see instructions)?

Yes ☐

No ☒

If yes, identify the dates, duration, description of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IUs that may have caused the interference.

N/A

### C. Treatment plant pass through

In the past three years, has your POTW experienced pass through (see instructions)?

Yes ☐ No ☒

If yes, identify the dates, duration, a description of the pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass through event. Include the names of the IUs that may have caused pass through.

N/A

### D. Pretreatment program

Does your POTW have an approved pretreatment program?

Yes ☐ No ☒

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program?

Yes ☐ No ☒

If yes, complete Section 2.c. and 2.d. only, and skip Section 3.

If no to either question above, skip Section 2 and complete Section 3 for each significant industrial user and categorical industrial user.

## Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 100)

### A. Substantial modifications

Have there been any **substantial modifications** to the approved pretreatment program that have not been submitted to the TCEQ for approval according to 40 CFR §403.18?

Yes ☐ No ☐

If yes, identify the modifications that have not been submitted to TCEQ, including the purpose of the modification.

**B. Non-substantial modifications**

Have there been any **non-substantial modifications** to the approved pretreatment program that have not been submitted to TCEQ for review and acceptance?

Yes ☐      No ☐

If yes, identify all non-substantial modifications that have not been submitted to TCEQ, including the purpose of the modification.

**C. Effluent parameters above the MAL**

In Table 6.0(1), list all parameters measured above the MAL in the POTW's effluent monitoring during the last three years. Submit an attachment if necessary.

**Table 6.0(1) - Parameters Above the MAL**

Pollutant	Concentration	MAL	Units	Date

#### **D. Industrial user interruptions**

Has any SIU, CIU, or other IU caused or contributed to any problems (excluding interferences or pass throughs) at your POTW in the past three years?

Yes ☐ No ☐

If yes, identify the industry, describe each episode, including dates, duration, description of the problems, and probable pollutants.

### **Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 100)**

#### **A. General information**

Company Name:

SIC Code:

Telephone number:

Fax number:

Contact name:

Address:

City, State, and Zip Code:

#### **B. Process information**

Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (i.e., process and non-process wastewater).

#### **C. Product and service information**

Provide a description of the principal product(s) or services performed.

**D. Flow rate information**

See the Instructions for definitions of "process" and "non-process wastewater."

Process Wastewater:

Discharge, in gallons/day:

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

Discharge, in gallons/day:

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

**E. Pretreatment standards**

Is the SIU or CIU subject to technically based local limits as defined in the instructions?

Yes ☐ No ☐

Is the SIU or CIU subject to categorical pretreatment standards found in *40 CFR Parts 405-471*?

Yes ☐ No ☐

**If subject to categorical pretreatment standards, indicate the applicable category and subcategory for each categorical process.**

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:



#### **F. Industrial user interruptions**

Has the SIU or CIU caused or contributed to any problems (e.g., interferences, pass through, odors, corrosion, blockages) at your POTW in the past three years?

Yes ☐

No ☐

If yes, identify the SIU, describe each episode, including dates, duration, description of problems, and probable pollutants.

--

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

Attachment 1

Copy of Check

Reference: Domestic Administrative Report 1.0

Section 1



SAN ANTONIO  
RIVER AUTHORITY

UT-MRT2-TCEQ-NPDES-DMR-CORR  
UT-UMRT-TCEQ-NPDES-DMR-CORR  
UT-MRT4-TCEQ-NPDES-DMR-CORR  
UT-SALA-TCEQ-NPDES-DMR-CORR

June 11, 2019

**CERTIFIED MAIL: RETURN RECEIPT REQUESTED (7017 3380 0000 7514 2004)**

Texas Commission on Environmental Quality  
Financial Administration Division  
Cashier's Office, MC-214  
P.O. Box 13088  
Austin, Texas 78711-3088

Reference: Salitrillo Creek Wastewater Treatment Plant; RN101514560  
TPDES Permit No. WQ0010749-001 and NPDES No. TX0053074;  
Martinez II Wastewater Treatment Plant; RN101514156  
TPDES Permit No. WQ0010749-004 and NPDES No. TX0095583;  
Upper Martinez Wastewater Treatment Plant; RN101514347  
TPDES Permit No. WQ0010749-003 and NPDES No. TX0024082;  
Martinez IV Wastewater Treatment Plant; RN105285506  
TPDES Permit No. WQ0010749-007 and NPDES No. TX0129861;  
San Antonio River Authority CN600790620; Tax No. 1-74-6011311-5

Subject: Wastewater Discharge Permit Application Fee

Dear Madam/Sir:

Enclosed is check no. 931973 for the total amount of \$8,130.00 for four (4) wastewater discharge permit applications for the above referenced plants. These four (4) permits are due to expire March 1, 2020. The fee amount for each application is as follows:

Salitrillo WWTP, Permit No. WQ0010749-001 (Major Amendment)	\$2,050.00
Martinez II WWTP, Permit No. WQ0010749-004 (Renewal)	\$2,015.00
Upper Martinez WWTP, Permit No. WQ0010749-003 (Renewal)	\$2,015.00
Martinez IV WWTP, Permit No. WQ0010749-007 (Major Amendment)	\$2,050.00

EXECUTIVE  
COMMITTEE



CHAIRMAN

Darrell T. Brownlow, Ph.D.

VICE CHAIRMAN

Michael W. Lackey, P.E.

SECRETARY

Lourdes Galvan

TREASURER

Jim Campbell

MEMBERS AT-LARGE

Gaylon J. Oehlke  
James Fuller, M.D.



BOARD OF DIRECTORS

BEXAR COUNTY

DISTRICT 1

Larry G. Gonzales

DISTRICT 2

Lourdes Galvan

DISTRICT 3

Michael W. Lackey, P.E.

DISTRICT 4

Jim Campbell

AT-LARGE

Hector R. Morales  
Deb Bolner Prost

WILSON COUNTY

Darrell T. Brownlow, Ph.D.

John J. Feller

KARNES COUNTY

H. B. Rackman, III

Gaylon J. Oehlke

COMAL COUNTY

James Fuller, M.D.

Andrea Long Cochran



GENERAL MANAGER

Suzanne Scott

Reference: Salitrillo Creek Wastewater Treatment Plant; RN101514560  
TPDES Permit No. WQ0010749-001 and NPDES No.TX0053074;  
Martinez II Wastewater Treatment Plant; RN101514156  
TPDES Permit No. WQ0010749-004 and NPDES No.TX0095583;  
Upper Martinez Wastewater Treatment Plant; RN101514347  
TPDES Permit No. WQ0010749-003 and NPDES No.TX0024082;  
Martinez IV Wastewater Treatment Plant; RN105285506  
TPDES Permit No. WQ0010749-007 and NPDES No.TX0129861;  
San Antonio River Authority CN600790620; Tax No. 1-74-6011311-5

Subject: Wastewater Discharge Permit Application Fee  
June 11, 2019  
Page 2

Please call Daniel Flores at (210) 302-4200, should you have any questions and/or require any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Flores", with a stylized flourish at the end.

DANIEL FLORES  
Utilities Operations Superintendent

DF;ddv

Enclosure

## WATER QUALITY PERMIT PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if the mailing the payment.

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- **Do not mail this form with the application form.**
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

**Mail this form and the check or money order to:**

***BY REGULAR U.S. MAIL***

Texas Commission on Environmental Quality  
Financial Administration Division  
Cashier's Office, MC-214  
P.O. Box 13088  
Austin, Texas 78711-3088

***BY OVERNIGHT/EXPRESS MAIL***

Texas Commission on Environmental Quality  
Financial Administration Division  
Cashier's Office, MC-214  
12100 Park 35 Circle  
Austin, Texas 78753

**Fee Code: WQP      Waste Permit No: See Attached List**

1. Check or Money Order Number: 931973
2. Check or Money Order Amount: \$8,130.00
3. Date of Check or Money Order: 06/07/2019
4. Name on Check or Money Order: San Antonio River Authority
5. APPLICATION INFORMATION

Name of Project or Site: See Attached List

Physical Address of Project or Site: See Attached List

If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

**Staple Check or Money Order in This Space**



SAN ANTONIO RIVER  
AUTHORITY

CHECK DATE	CHECK NO.
06/07/19	931973

NUMBER	INVOICE NUMBER	INVOICE DATE	SECONDARY REF	DESCRIPTION	NET AMOUNT
	PERMIT 10749-001	05/31/19		RENEWAL WQ 0010749-001	2,050.00
	PERMIT 10749-003	05/31/19		RENEWAL WQ 0010749-003	2,015.00
	PERMIT 10749-004	05/31/19		RENEWAL WQ 0010749-004	2,015.00
	PERMIT 10749-007	05/31/19		RENEWAL WQ 0010749-007	2,050.00
TOTAL					8,130.00

DETACH STUB BEFORE DEPOSITING



SAN ANTONIO RIVER AUTHORITY  
DISBURSING ACCOUNT  
P.O. BOX 839980  
SAN ANTONIO, TEXAS 78283 - 9980  
210-227-1373

FROST BANK  
DOWNTOWN

30-9/1140

CHECK NO. 931973

DATE 06/07/19 AMOUNT \$\*\*\*\*\*8,130.00

VOID AFTER SIX MONTHS

PAY EXACTLY EIGHT Thousand ONE Hundred THIRTY Dollars and ZERO Cents

TO THE ORDER OF TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
PO BOX 13089  
AUSTIN TX 78711-3089

*Supreme Court*  
*Stephen J. Graham*

⑈931973⑈ ⑈111.00000000⑈ ⑈1000000000⑈

List of Projects Included on Check

San Antonio River Authority CN600790620; Tax No. 1-74-6011311-5  
Check No. 931973, \$8,130.00

Salitrillo Creek Wastewater Treatment Plant; RN101514560  
TPDES Permit No. WQ0010749-001 and NPDES No.TX0053074;  
9638 Schaefer Road, Converse Texas 78109  
\$2,050.00

Martinez II Wastewater Treatment Plant; RN101514156  
TPDES Permit No. WQ0010749-004 and NPDES No.TX0095583;  
1720 Farm-to-Market Road 1516 North, Converse Texas 78109  
\$2015.00

Upper Martinez Wastewater Treatment Plant; RN101514347  
TPDES Permit No. WQ0010749-003 and NPDES No.TX0024082;  
8203 Binz-Engleman Road San Antonio, Texas 78244  
\$2015.00

Martinez IV Wastewater Treatment Plant; RN105285506  
TPDES Permit No. WQ0010749-007 and NPDES No.TX0129861;  
2095 N. Graytown Road, Saint Hedwig Texas 78152  
\$2050.00

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

**Attachment 2**

**Core Data Form**

**Reference: Domestic Administrative Report 1.0**

**Section 3 C**





TCEQ Use Only

# TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

## SECTION I: General Information

<b>1. Reason for Submission</b> (If other is checked please describe in space provided.) <input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) <input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form) <input type="checkbox"/> Other		
<b>2. Customer Reference Number (if issued)</b>  CN 600790620	Follow this link to search for CN or RN numbers in Central Registry**	<b>3. Regulated Entity Reference Number (if issued)</b>  RN 105285506

## SECTION II: Customer Information

<b>4. General Customer Information</b>		<b>5. Effective Date for Customer Information Updates (mm/dd/yyyy)</b>	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)			
<b>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</b>			
<b>6. Customer Legal Name</b> (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:	
San Antonio River Authority			
<b>7. TX SOS/CPA Filing Number</b> 0800533765	<b>8. TX State Tax ID (11 digits)</b> 12035383905	<b>9. Federal Tax ID (9 digits)</b> 746011311	<b>10. DUNS Number (if applicable)</b> 074611047
<b>11. Type of Customer:</b> <input type="checkbox"/> Corporation <input type="checkbox"/> Individual <input type="checkbox"/> Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited			
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input checked="" type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Other:	
<b>12. Number of Employees</b> <input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input checked="" type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<b>13. Independently Owned and Operated?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>14. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following: <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:			
<b>15. Mailing Address:</b>	100 E Guenther Street		
	City	San Antonio	State TX ZIP 78204 ZIP + 4
<b>16. Country Mailing Information</b> (if outside USA)		<b>17. E-Mail Address</b> (if applicable) danielf@sara-tx.org	
<b>18. Telephone Number</b> ( 210 ) 227-1373	<b>19. Extension or Code</b>	<b>20. Fax Number (if applicable)</b> ( 210 ) 661-9324	

## SECTION III: Regulated Entity Information

<b>21. General Regulated Entity Information</b> (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application) <input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information		
<b>The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)</b>		
<b>22. Regulated Entity Name</b> (Enter name of the site where the regulated action is taking place.) Martinez IV Wastewater Treatment Plant		

23. Street Address of the Regulated Entity: (No PO Boxes)	2095 N Graytown Rd						
	City	Saint Hedwig	State	TX	ZIP	78152	ZIP + 4
24. County	Bexar						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:							
26. Nearest City					State	Nearest ZIP Code	
27. Latitude (N) In Decimal:	29.44577			28. Longitude (W) In Decimal:	-98.2475		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	26	43	98	14	51		
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)		
4952			22132				
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)							
Wastewater Treatment							
34. Mailing Address:	100 E Guenther Street						
	City	San Antonio	State	TX	ZIP	78204	ZIP + 4
35. E-Mail Address:							
36. Telephone Number		37. Extension or Code		38. Fax Number (if applicable)			
(210) 227-1373				(210) 661-9324			

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
WQ0010749-007				

#### SECTION IV: Preparer Information

40. Name:	Clairissa Flores	41. Title:	Chief Operator/Ind Waste Insp
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 302-4200		(210) 661-9324	cflores@sara-tx.org

#### SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	San Antonio River Authority	Job Title:	General Manager
Name(In Print):	Suzanne B. Scott	Phone:	(210) 227-1373
Signature:		Date:	8/15/19



**Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)**

**Attachment 3**

**Original USGS Map**

**Reference: Domestic Administrative Report 1.0**

**Section 13**





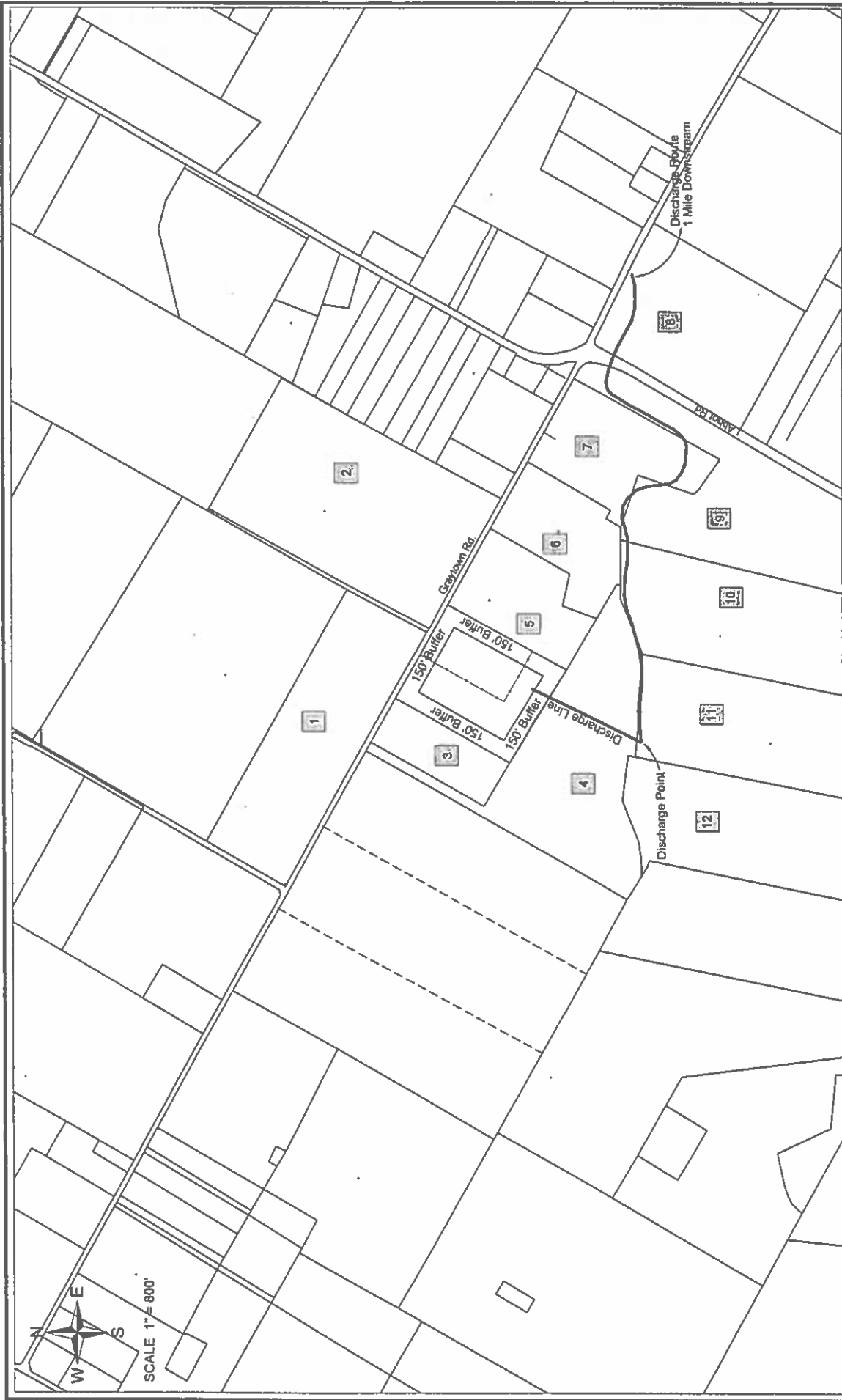
Martinez IV Wastewater Discharge Permit Amendment 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 4

### Affected Landowner Map, List, and Labels

Reference: Domestic Administrative Report 1.1

## Section 1



ATTACHMENT 4 SHEET OF	
PROPERTY OWNERS MARTINEZ IV WTP	
SAN ANTONIO RIVER AUTHORITY 100 E. GUENTHER STREET P.O. BOX 839980 SAN ANTONIO, TEXAS 78283-9980	
FOR REVIEW ONLY THIS DOCUMENT IS NOT TO BE USED FOR CONSTRUCTION	
THE DRAWING IS PRELIMINARY DESIGN. IT IS NOT TO BE USED FOR CONSTRUCTION. ANY CHANGES SHOULD BE DONE BEFORE CONSTRUCTION. FOR FINAL DESIGN, CONSULT THE SAN ANTONIO RIVER AUTHORITY.	
DESIGNED BY: JD	CHECKED BY: JR
DATE: 7-15-14	FILE: EXIST, BRDE



Martinez IV WWTP  
WQ0010749-007  
San Antonio River Authority

Landowners List

- |  |  |
|--|--|
| 1) BETTY S & WILLIAM W RIEBE<br>504 SAGECREST DR<br>SAN ANTONIO, TX 78232-1120                       | 7) EDUARDO M MONTALVO & SABY ARACELY RAMOS<br>9220 LINCOLNWOOD DR<br>CONVERSE, TX 78109-5143   |
| 2) FLORENCE ROSE Z REAL<br>2092 N GRAYTOWN RD<br>CONVERSE, TX 78109-3017                             | 8) JOHN KEVIN & ROBIN CHAPMAN MASSENGALE<br>7309 S TRIPLE ELM ST<br>SAN ANTONIO, TX 78263-4009 |
| 3) DONNA LEE RAUSCHUBER<br>2450 E FM 1518 N<br>SAINT HEDWIG, TX 78152-9646                           | 9) WILIAM RICHARD KULESZA JR<br>2235 INDIAN MEADOWS DR<br>SAN ANTONIO, TX 78230-5931           |
| 4) FLORIANO CISNEROS ETAL<br>255 SABYAN DR<br>SAN ANTONIO, TX 78218-4241                             | 10) RIGOBERTO CISNEROS SORIA<br>4610 PFIEL<br>CONVERSE, TX 78109                               |
| 5) DENNIS W TABER SR & CATHERINE M WESCH<br>1961 N GRAYTOWN RD UNIT 3<br>SAINT HEDWIG, TX 78152-8279 | 11) MICHAEL G & KATHLEEN M KYRISH<br>13715 BLUFFCIRCLE<br>SAN ANTONIO, TX 78216-1905           |
| 6) RONALD H WESCH<br>PO BOX 298<br>SAINT HEDWIG, TX 78152-0298                                       | 12) MELVIN F GOLLA<br>4915 PITTMAN RD<br>ADKINS, TX 78101-1863                                 |

BETTY S & WILLIAM W RIEBE  
504 SAGECREST DR  
SAN ANTONIO TX 78232-1120

FLORENCE ROSE Z REAL  
2092 N GRAYTOWN RD  
CONVERSE TX 78109-3017

DONNA LEE RAUSCHUBER  
2450 E FM 1518 N  
SAINT HEDWIG TX 78152-9646

FLORIANO CISNEROS ETAL  
255 SABYAN DR  
SAN ANTONIO TX 78218-4241

DENNIS W TABER SR &  
CATHERINE M WESCH  
1961 N GRAYTOWN RD UNIT 3  
SAINT HEDWIG TX 78152-8279

RONALD H WESCH  
PO BOX 298  
SAINT HEDWIG TX 78152-0298

EDUARDO M MONTALVO &  
SABY ARACELY RAMOS  
9220 LINCOLNWOOD DR  
CONVERSE TX 78109-5143

JOHN KEVIN &  
ROBIN C MASSENGALE  
7309 S TRIPLE ELM ST  
SAN ANTONIO TX 78263-4009

WILIAM RICHARD KULESZA JR  
2235 INDIAN MEADOWS DR  
SAN ANTONIO TX 78230-5931

RIGOBERTO CISNEROS SORIA  
4610 PFIEL  
CONVERSE TX 78109

MICHAEL G &  
KATHLEEN M KYRISH  
13715 BLUFFCIRCLE  
SAN ANTONIO TX 78216-1905

MELVIN F GOLLA  
4915 PITTMAN RD  
ADKINS TX 78101-1863

Martinez IV Wastewater Discharge Permit Amendment 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 5

### Original Photographs with Map

Reference: Domestic Administrative Report 1.1

### Section 2

PHOTO 1



Point of discharge  
Looking upstream

PHOTO 2



Point of discharge  
Looking downstream

PHOTO 3



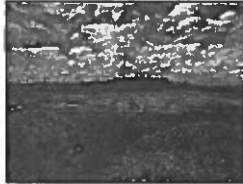
Future Biotreatment Unit #1  
Looking NNE

PHOTO 4



Future Biotreatment Unit #2  
Looking NNE

PHOTO 5



Future Clarifier #1  
Looking WNW

PHOTO 6



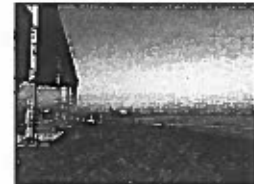
Future Clarifier #2  
Looking WNW

PHOTO 7

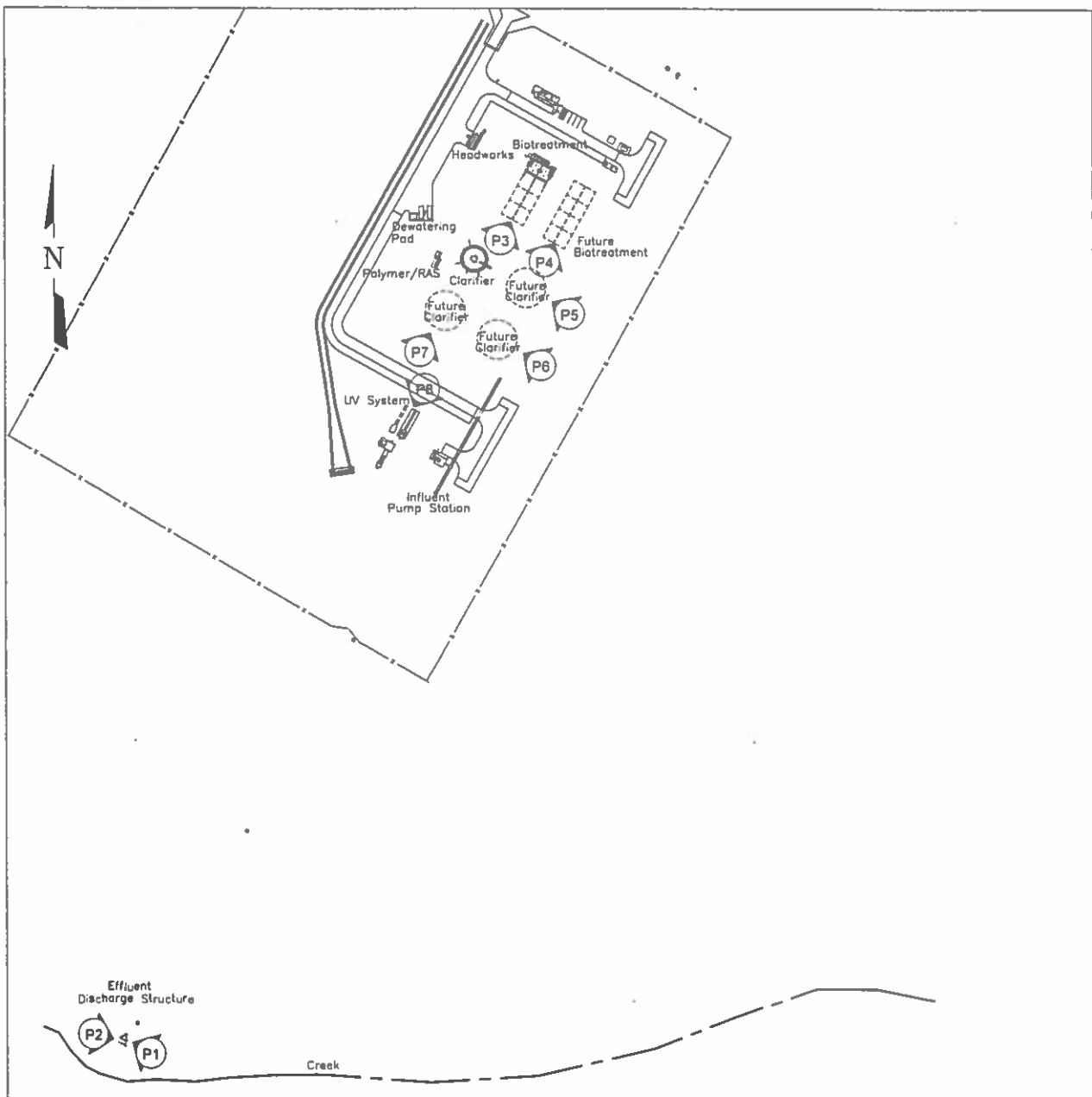


Future Clarifier #3  
Looking NNE

PHOTO 8



Future UV Channel  
Looking SSW



# MARTINEZ IV Existing Site Photos Site Photo Key

Photo 1

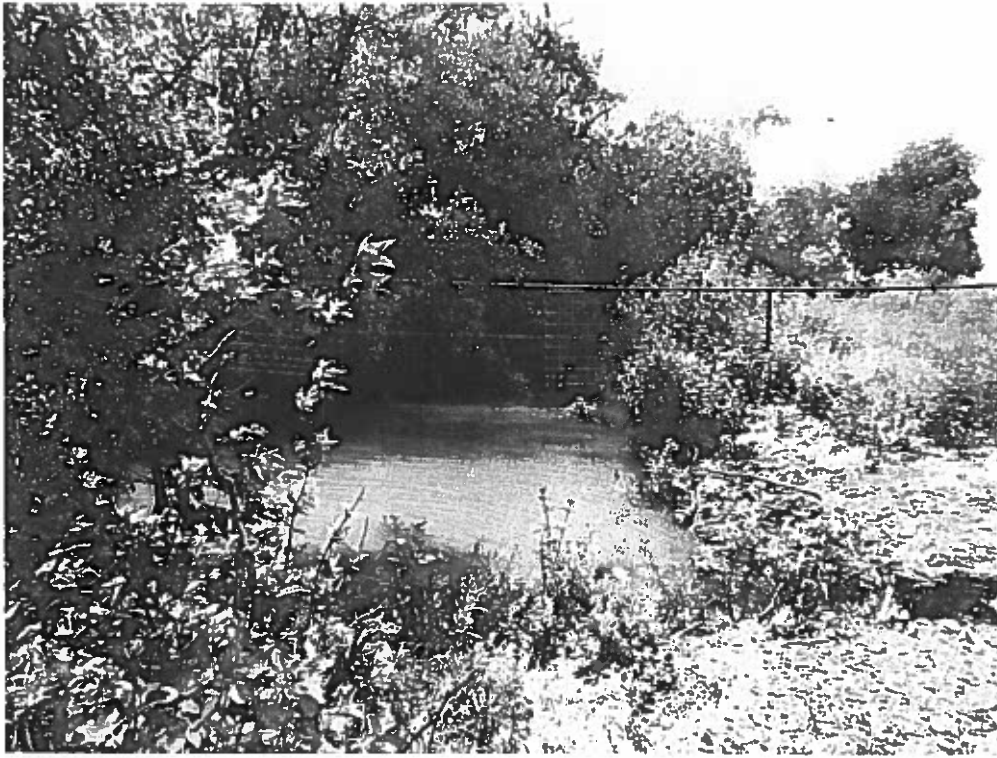


Photo 2

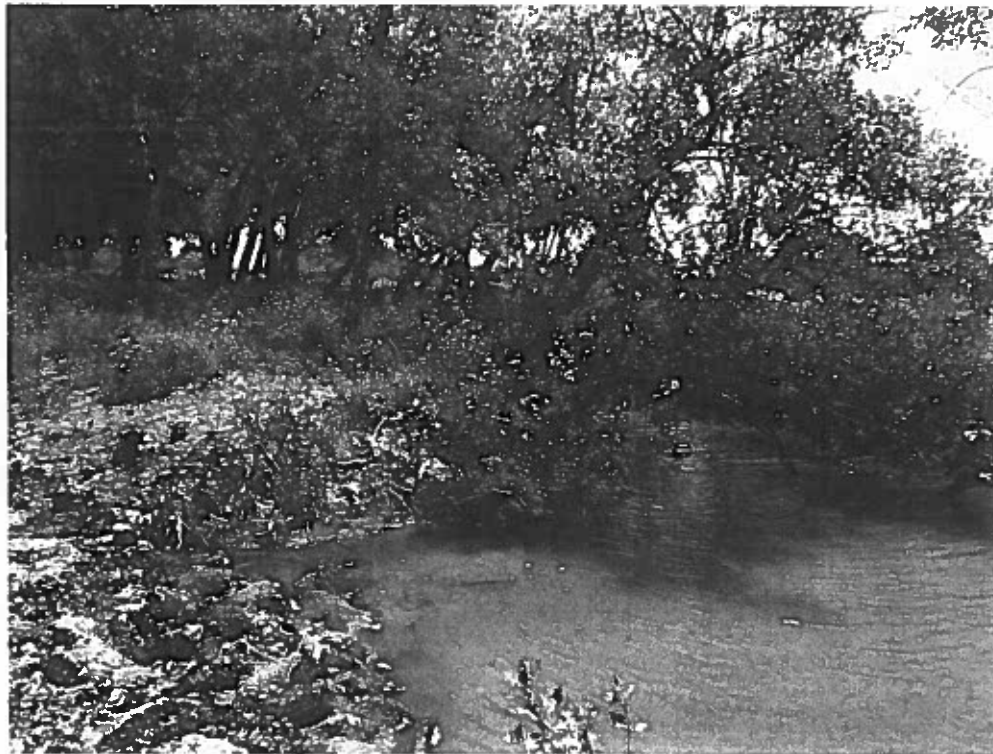


Photo 3

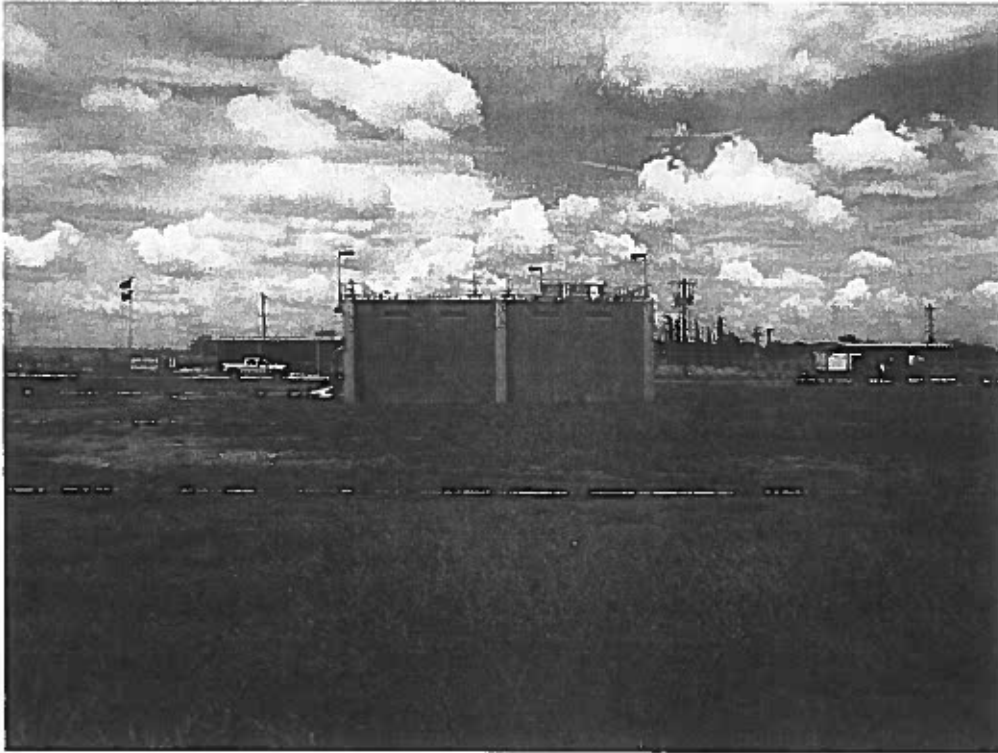


Photo 4



Photo 5

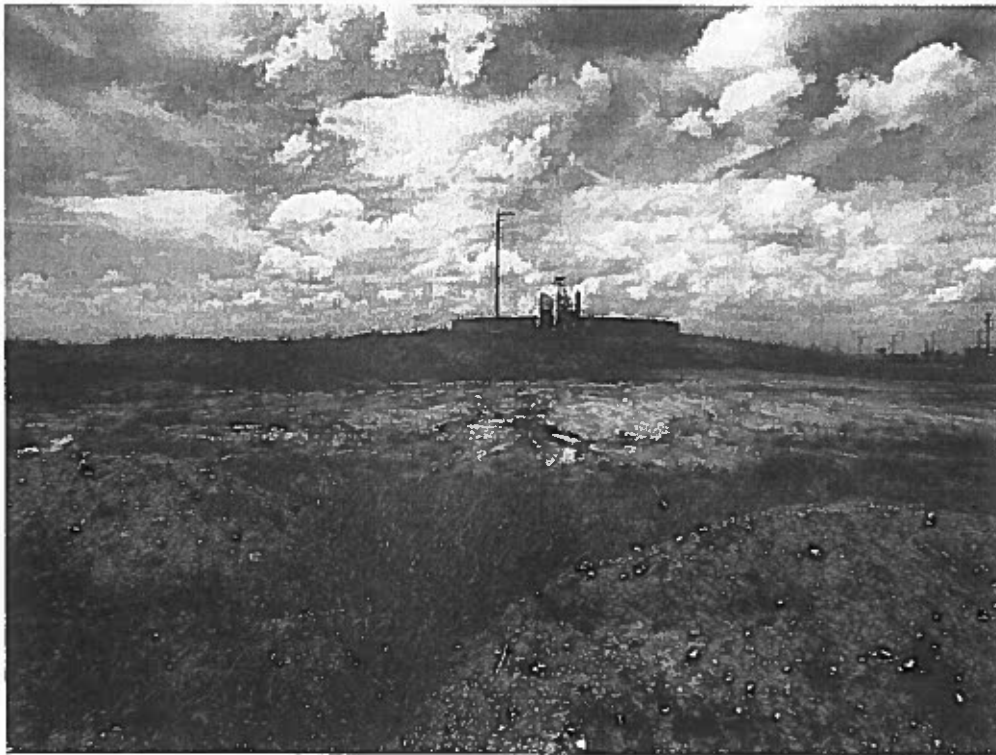


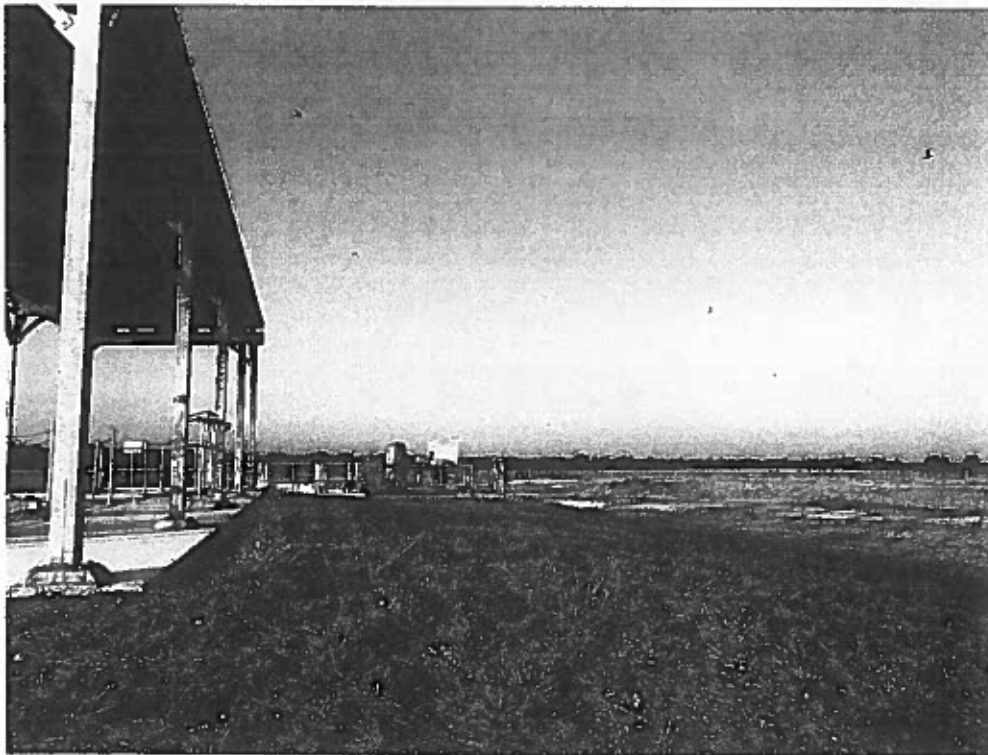
Photo 6



Photo 7



Photo 8





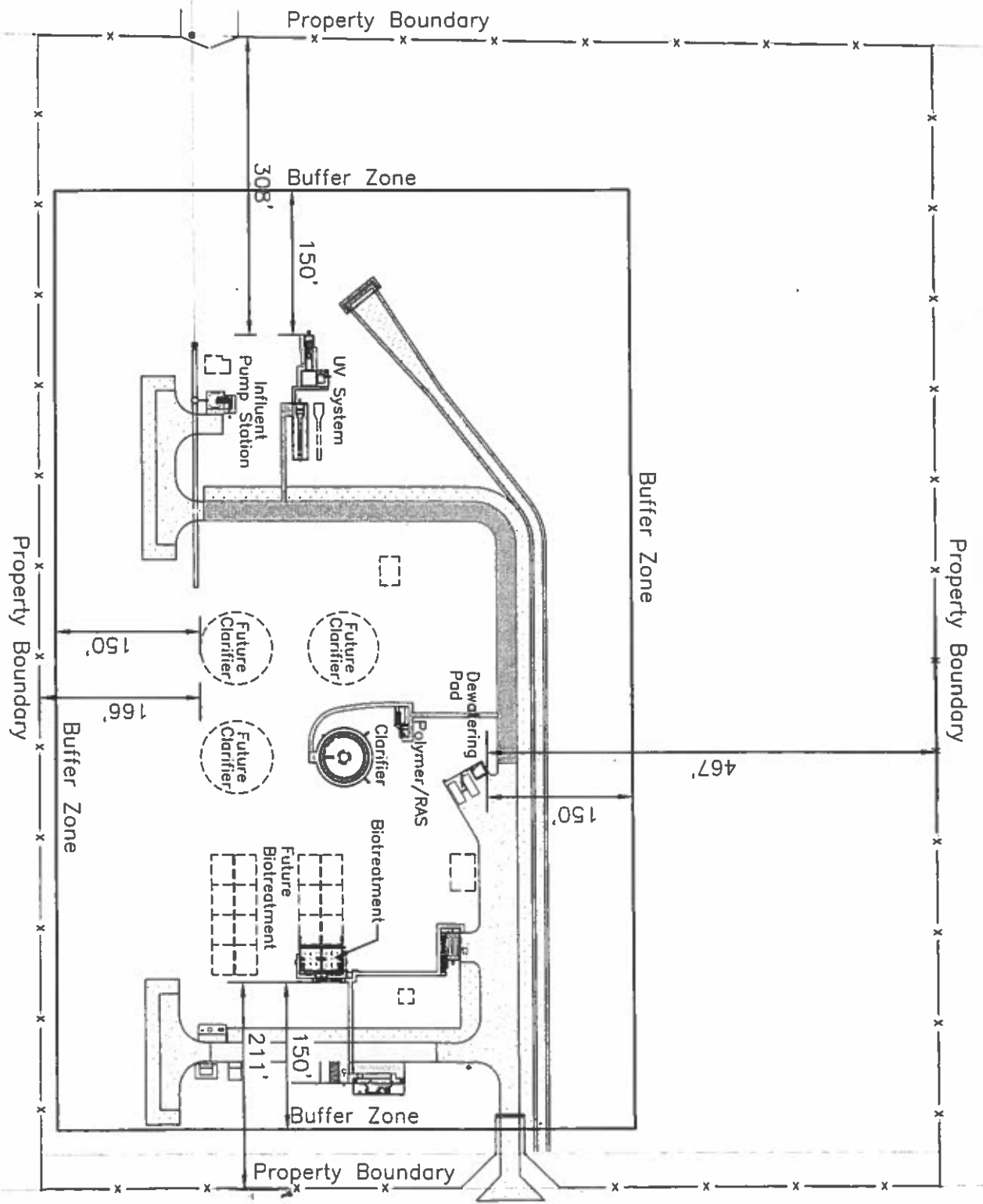
Martinez IV Wastewater Discharge Permit Amendment 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 6

### Buffer Zone Map

Reference: Domestic Administrative Report 1.1

### Section 3



Scale: 1" = 200'

MARTINEZ IV

Attachment 6 Buffer Zone Map

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

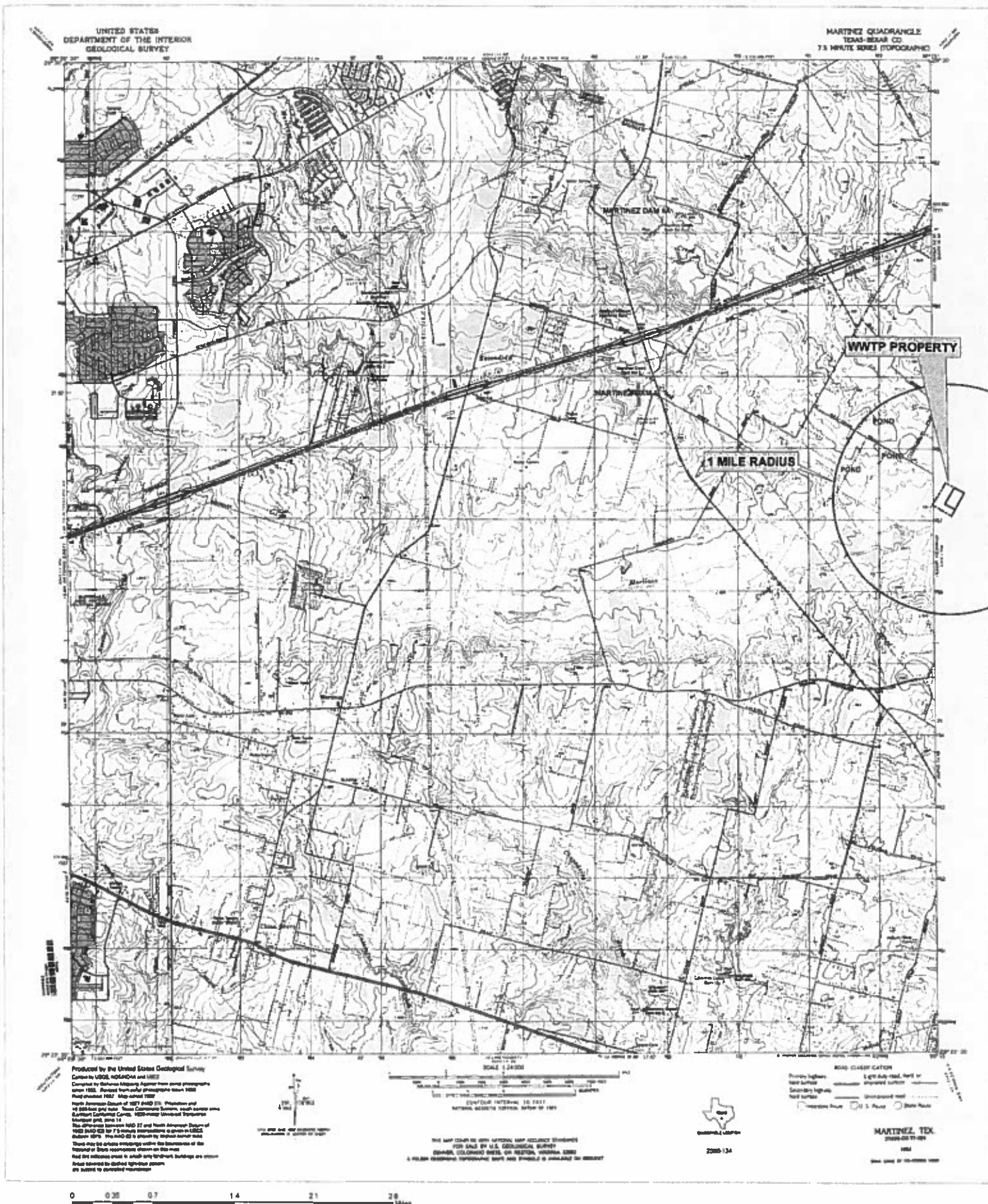
Attachment 7

Original USGS Map

Reference: Supplemental Permit Information Form (SPIF)

Page 17, Item 5





Original USGS Topographic Map



Attachment 7B

**Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)**

## **Attachment 8**

### **Treatment Process Description**

**Reference: Domestic Technical Report 1.0**

#### **Section 2 A**

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Existing Interim Phase I)**

The Martinez IV WWTP is a single-stage nitrification, activated sludge facility. Martinez IV currently operates in interim phase I. Phase I has a 0.25 MGD design flow (1.0 MGD peak) and is designed to meet the following effluent parameters based on influent characteristics of 200 mg/L BOD<sub>5</sub>, 200 mg/L TSS, and 30 NH<sub>3</sub>-N: 10 mg/L BOD<sub>5</sub>, 15 mg/L TSS, 3 mg/L NH<sub>3</sub>-N, and 4 mg/L dissolved oxygen.

**1. Lift Station**

Collected wastewater enters an onsite lift station. The on-site lift station wet well is designed to handle the peak flow up to phase II of the treatment plant expansion, with pumps replaced as greater flow is required. At buildout, a second lift station will need to be constructed to meet peak flow conditions. A manhole has been constructed upstream of the wet well to allow for flow splitting upon completion of second lift station. The existing wet well is sized for phase II peak flow of 3.0 MGD (2,083 GPM) with two submersible pumps sized for the phase I peak flow of 1.0 MGD (694 GPM), and a submersible jockey pump available for the lower flow conditions of 0.25 MGD (174 GPM). From the wet well, the flow is pumped directly to the headworks through an 8-inch force main. A 10-inch force main runs alongside the 8-inch to accommodate future flows with the addition of the second lift station.

The lift station is controlled by an ultrasonic level transducer, with a back up float system. The jockey pump is for low flow conditions and the two larger pumps are to handle peak flow conditions. The pump cycle sequence is: Jockey Pump On, Lead Pump On (Jockey Off), Lag Pump On (Lead and Jockey Off). The two large pumps alternate between lead and lag, and the controls are designed such that no two pumps run at the same time. The level transducer level set points are adjustable and includes a high level and high-high level alarm. The float system is a high- and low-level float, with high level calling for one of the larger pumps to cycle and pump down to low level float.

**2. Headworks**

The headworks consist of three channels. Two channels are for mechanical fine screens and one channel is for a bypass with coarse screen. The two fine screen channels have a peak flow capacity of 4.0 MGD each. One fine screen channel has a HUBER RakeMax Multi-Rake Bar Screen with attached ROTAMAT Screening Wash Press WAP installed. The second fine screen channel is reserved for future expansion. The RakeMax has 0.25-inch bar spacing and a max capacity of 4.0 MGD and the ROTAMAT has a maximum throughput (peak flow) of 70 ft<sup>3</sup>/h. The coarse bar screen in the bypass channel has 1-inch bar spacing and is designed to accommodate the ultimate peak flow of 8.0 MGD.

The collected screenings are discharged from the Wash Press chute into a 4 yd<sup>3</sup> dumpster collected once a week by Republic Services, to be disposed of at a permitted Type I MSW landfill. The dumpster sits on a concrete spill containment pad with sloped floors and a drain connected to the on-site lift station via an 8-inch gravity drain line.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Existing Interim Phase I cont'd)**

After the influent wastewater passes through screening, it combines with the return activated sludge and leaves the headworks in a 12-inch line and flows directly to the biotreatment inlet box.

**3. Aeration Basins (STM-Aerotor)**

At the biotreatment inlet box, the 12-inch line is reduced to a 10-inch opening. The flow is split between the basin's two trains using gates. Each chamber of the train is 28' x 21' x 16.5' (length, width, side water depth), contains one STM-Aerotor, and is designed for 0.125 MGD average flow and 0.5 MGD peak flow. There are two chambers in the existing phase with a combined capacity of 0.25 MGD (average) / 1.0 MGD (peak). The design organic loading rate for the conventional aeration process is 28.4 lbs BOD<sub>5</sub>/day/1000 cu-ft and adheres to the maximum organic loading rate stipulated in TAC 217.154(b)(2) Table F.1. WesTech provided calculations verifying the oxygen requirements for the facility are met.

Once aerated, the mixed liquor flows into the clarifier via 12-inch overflow pipes in each train.

**4. Clarifiers**

The mixed liquor enters the center well of the 50 ft diameter (13 ft SWD) clarifier, where the sludge separates from the supernatant. The clarifier is sized to meet the San Antonio River Authority's maximum surface loading requirement of 600 gal/day/sf, which is more stringent than the 800 gal/day/sf requirement set by the Texas Commission on Environmental Quality. The required minimum surface area is 10,000 sf. In order to meet SARA's loading requirements, the clarifier has outboard launders to transfer the effluent to the disinfection system. The clarifier's capacity is 0.25 MGD/ 1.0 MGD (average/peak). The settled sludge is pulled from the bottom of the clarifier by one of three pumps.

**5. Waste/Return Activated Sludge Pumps**

The three waste/return activated sludge pumps are self-priming centrifugal pumps and pull sludge from the bottom of the clarifier and pump to one of two locations. The return activated sludge is pumped back to the plant, downstream of the bar screen at the headworks. The waste activated sludge is mixed with polymer and pumped to one of two sludge dewatering containers that are dried before being hauled to Gardenville/Martinez II Recycling Facility or Allied Waste (BFI) Tessman Road Municipal Solid Waste Landfill.



**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Existing Interim Phase I cont'd)**

**6. Ultraviolet Disinfection**

The ultraviolet (UV) disinfection channel disinfects the treated wastewater prior to discharge into Martinez Creek. The UV channel is 37.1' L x 1.75' W x 2' SWD and is sized to handle the peak flow of 1.0 MGD. Martinez IV WWTP utilizes the Trojan UV 3000B system and has two banks of lights. Each bank contains three modules with eight bulbs per module for a total of 48 bulbs. The existing channel uses reduction baffles to reduce the volume permitted through the lights. The baffles will be removed, and additional modules will be added during expansion.

**7. Effluent Flow Measurement**

Effluent flow is measured by a 12" Parshall flume on the downstream side of the UV disinfection chamber. Treated effluent flows through the Parshall flume to the discharge piping, and then into Martinez Creek. A staff gauge, located on the Parshall flume, identifies the amount of effluent flowing through the flume. An ultrasonic level meter sends the flume level measurements to an open channel totalizing meter.

**8. Sludge Disposal**

Waste activated sludge (WAS) from the clarifier is pumped by a self priming centrifugal pump to a 30 CY mobile sludge dewatering container. Polymer is mixed with the liquid sludge, separating water from the solids in the dewatering container. The liquid flows through the filter walls and floor in the container. The container is located on a sloped concrete pad and the drained liquid flows out of the container to the drain system connected to the plant lift station through an 8-inch drain line.

The dewatered sludge is disposed of in one of two ways:

1. Hauled to Martinez II WWTP to be composted and/or heat dried to a Class 'A' level of pathogen reduction, and biosolids will be marketed and distributed back into the wholesale/retail landscaping market. The San Antonio River Authority owns both WWTPs.
2. Hauled to BFI Tessman Road Municipal Solid Waste Landfill for final disposal. This option is only a back-up plan should the new composting/heat drying facility be temporarily unavailable.

Additional liquid sludge can be hauled to Martinez II WWTP or Upper WWTP if needed. SARA owns two 6,500-gallon tankers, and one 3,300-gallon pump and haul truck.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 -DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Interim Phase II)**

The Martinez IV WWTP is a single-stage nitrification, activated sludge facility. Martinez IV currently operates in interim phase I. Proposed phase II will have a 0.91 MGD design flow (3.64 MGD peak) and will be designed to meet the following effluent parameters based on influent characteristics of 200 mg/L BOD<sub>5</sub>, 200 mg/L TSS, and 30 NH<sub>3</sub>-N: 10 mg/L BOD<sub>5</sub>, 15 mg/L TSS, 3 mg/L NH<sub>3</sub>-N, and 4 mg/L dissolved oxygen.

**1. Lift Station**

Collected wastewater enters an onsite lift station. The on-site lift station wet well is designed to handle the peak flow up to phase II of the treatment plant expansion, with pumps replaced as greater flow is required. At buildout, a second lift station will need to be constructed to meet peak flow conditions. A manhole has been constructed upstream of the wet well to allow for flow splitting upon completion of second lift station. The existing wet well is sized for phase II peak flow of 3.0 MGD (2,083 GPM). Two submersible pumps sized for phase II peak flow, and a submersible jockey pump available for the lower flow conditions of will replace the existing pumps. From the wet well, the flow is pumped directly to the headworks through an 8-inch force main. A 10-inch force main runs alongside the 8-inch to accommodate future flows with the addition of the second lift station.

The lift station is controlled by an ultrasonic level transducer, with a back up float system. The jockey pump is for low flow conditions and the two larger pumps are to handle peak flow conditions. The pump cycle sequence is: Jockey Pump On, Lead Pump On (Jockey Off), Lag Pump On (Lead and Jockey Off). The two large pumps alternate between lead and lag, and the controls are designed such that no two pumps run at the same time. The level transducer level set points are adjustable and includes a high level and high-high level alarm. The float system is a high- and low-level float, with high level calling for one of the larger pumps to cycle and pump down to low level float.

**2. Headworks**

The headworks consist of three channels. Two channels are for mechanical fine screens and one channel is for a bypass with coarse screen. The two fine screen channels have a peak flow capacity of 4.0 MGD each. One fine screen channel has a HUBER RakeMax Multi-Rake Bar Screen with attached ROTAMAT Screening Wash Press WAP installed. The second fine screen channel is reserved for future expansion. The RakeMax has 0.25-inch bar spacing and a max capacity of 4.0 MGD and the ROTAMAT has a maximum throughput (peak flow) of 70 ft<sup>3</sup>/h. The coarse bar screen in the bypass channel has 1-inch bar spacing and is designed to accommodate the ultimate peak flow of 8.0 MGD.

The collected screenings are discharged from the Wash Press chute into a 4 yd<sup>3</sup> dumpster collected once a week by Republic Services, to be disposed of at a permitted Type I MSW landfill. The dumpster sits on a concrete spill containment pad with sloped floors and a drain connected to the on-site lift station via an 8-inch gravity drain line.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 -DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Interim Phase II cont'd)**

After the influent wastewater passes through screening, it combines with the return activated sludge and leaves the headworks in a 12-inch line and flows directly to the biotreatment inlet box.

**3. Aeration Basins (STM-Aerotor)**

At the biotreatment inlet box, the 12-inch line is reduced to a 10-inch opening. The flow is split between the basin's two trains using gates. Each chamber of the train is 28' x 21' x 16.5' (length, width, side water depth), contains one STM-Aerotor, and is designed for 0.125 MGD average flow and 0.5 MGD peak flow. There are two chambers in the existing phase. During proposed phase II an additional six chambers will be added to the current basin, three per train. The combined capacity will be 1.0 MGD (average) / 4.0 MGD (peak). The design organic loading rate for the conventional aeration process will be determined and will adhere to the maximum organic loading rate stipulated in TAC 217.154(b)(2) Table F.1. WesTech will provide calculations verifying the oxygen requirements for the facility will be met.

Once aerated, the mixed liquor will flow into the clarifier splitter box via 12-inch overflow pipes in each train.

**4. Clarifiers**

In proposed phase II, the mixed liquor will enter a splitter box, then be diverted to the center wells of the existing 50 ft diameter (13 ft SWD) clarifier and the proposed 75 ft diameter (13 ft SWD) clarifier, where the sludge separates from the supernatant. The clarifiers will be sized to meet the San Antonio River Authority's maximum surface loading requirement of 600 gal/day/sf, which is more stringent than the 800 gal/day/sf requirement set by the Texas Commission on Environmental Quality. The required minimum surface area is 10,000 sf. In order to meet SARA's loading requirements, the clarifiers will have outboard launders to transfer the effluent to the disinfection system. The combined clarifiers' capacity will be 0.91 MGD/ 3.64 MGD (average/peak). The settled sludge will be pulled from the bottom of the clarifiers by one of three pumps.

**5. Waste/Return Activated Sludge Pumps**

The three waste/return activated sludge pumps are self-priming centrifugal pumps and pull sludge from the bottom of the clarifier and pump to one of two locations. The return activated sludge is pumped back to the plant, downstream of the bar screen at the headworks. The waste activated sludge is mixed with polymer and pumped to sludge dewatering containers that are dried before being hauled to Gardenville/Martinez II Recycling Facility or Allied Waste (BFI) Tessman Road Municipal Solid Waste Landfill.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 -DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Interim Phase II cont'd)**

**6. Ultraviolet Disinfection**

The ultraviolet (UV) disinfection channel disinfects the treated wastewater prior to discharge into Martinez Creek. The UV channel is 37.1' L x 1.75' W x 2' SWD and will be sized to handle the peak flow of 4.0 MGD. Martinez IV WWTP utilizes the Trojan UV 3000B system. Additional modules will be added to the existing channel to accommodate the increase flow.

**7. Effluent Flow Measurement**

Effluent flow is measured by a 12" Parshall flume on the downstream side of the UV disinfection chamber. Treated effluent will flow through the Parshall flume to the discharge piping, and then into Martinez Creek. A staff gauge, located on the Parshall flume, identifies the amount of effluent flowing through the flume. An ultrasonic level meter sends the flume level measurements to an open channel totalizing meter.

**8. Sludge Disposal**

Waste activated sludge (WAS) from the clarifier will be pumped by a self priming centrifugal pump to a 30 CY mobile sludge dewatering container. Polymer is mixed with the liquid sludge, separating water from the solids in the dewatering container. The liquid flows through the filter walls and floor in the container. The container is located on a sloped concrete pad and the drained liquid flows out of the container to the drain system connected to the plant lift station through an 8-inch drain line. Sludge management needs will be evaluated at each expansion to determine additional required capacity (if any) needed to accommodate additional solids production.

The dewatered sludge is disposed of in one of two ways:

1. Hauled to Martinez II WWTP to be composted and/or heat dried to a Class 'A' level of pathogen reduction, and biosolids will be marketed and distributed back into the wholesale/retail landscaping market. The San Antonio River Authority owns both WWTPs.
2. Hauled to BFI Tessman Road Municipal Solid Waste Landfill for final disposal. This option is only a back-up plan should the new composting/heat drying facility be temporarily unavailable.

Additional liquid sludge can be hauled to Martinez II WWTP or Upper WWTP if needed. SARA owns two 6,500-gallon tankers, and one 3,300-gallon pump and haul truck.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Final Design)**

The Martinez IV WWTP is a single-stage nitrification, activated sludge facility. Martinez IV currently operates in interim phase I. Proposed final design build will have a 2.0 MGD design flow (8.0 MGD peak) and will be designed to meet the following effluent parameters based on influent characteristics of 200 mg/L BOD<sub>5</sub>, 200 mg/L TSS, and 30 NH<sub>3</sub>-N: 10 mg/L BOD<sub>5</sub>, 15 mg/L TSS, 3 mg/L NH<sub>3</sub>-N, and 4 mg/L dissolved oxygen.

**1. Lift Station**

Collected wastewater enters an onsite lift station. The on-site lift station wet well is designed to handle the peak flow up to phase II of the treatment plant expansion, with pumps replaced as greater flow is required. At buildout, a second lift station will need to be constructed to meet peak flow conditions. A manhole has been constructed upstream of the wet well to allow for flow splitting upon completion of second lift station. The existing wet well is sized for phase II peak flow of 3.0 MGD (2,083 GPM). Two submersible pumps sized for proposed phase II peak flow, and a submersible jockey pump available for the lower flow conditions will be in the existing lift station. The proposed second lift station will be designed so the combined capacity of the two lift stations will be 2.0 MGD average and 8.0 MGD peak. From the wet well, the flow will be pumped directly to the headworks through an 8-inch and 10-inch force main.

The lift stations will each be controlled by an ultrasonic level transducer, with a back up float system. The jockey pump is for low flow conditions and the two larger pumps are to handle peak flow conditions. The pump cycle sequence is: Jockey Pump On, Lead Pump On (Jockey Off), Lag Pump On (Lead and Jockey Off). The two large pumps alternate between lead and lag, and the controls are designed such that no two pumps run at the same time. The level transducer level set points are adjustable and includes a high level and high-high level alarm. The float system is a high- and low-level float, with high level calling for one of the larger pumps to cycle and pump down to low level float.

**2. Headworks**

The headworks consist of three channels. Two channels are for mechanical fine screens and one channel is for a bypass with coarse screen. The two fine screen channels have a peak flow capacity of 4.0 MGD each. Both fine screen channels will have a HUBER RakeMax Multi-Rake Bar Screen with attached ROTAMAT Screening Wash Press WAP installed. The RakeMax has 0.25-inch bar spacing and a max capacity of 4.0 MGD and the ROTAMAT has a maximum throughput (peak flow) of 70 ft<sup>3</sup>/h. The coarse bar screen in the bypass channel has 1-inch bar spacing and is designed to accommodate the ultimate peak flow of 8.0 MGD.

The collected screenings are discharged from the Wash Press chute into a 4 yd<sup>3</sup> dumpster collected once a week by Republic Services, to be disposed of at a permitted Type I MSW landfill. The dumpster sits on a concrete spill containment pad with sloped floors and a drain connected to the on-site lift station via an 8-inch gravity drain line.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Final Design cont'd)**

Space in the site plan and hydraulic profile is left for the addition of a grit removal system. A splitter box will be added for the final expansion to split flow evenly to the four aeration basins.

After the influent wastewater passes through screening, it will combine with the return activated sludge and leave the headworks in an existing 12-inch line and a proposed 16-inch line, then flow into a splitter box to be evenly distributed to the aeration basins.

**3. Aeration Basins (STM-Aerotor)**

The influent will be received evenly between the existing basin and the proposed basin. The flow will be split between each basin's two trains using gates. Each chamber of the train is 28' x 21' x 16.5' (length, width, side water depth), contains one STM-Aerotor, and is designed for 0.125 MGD average flow and 0.5 MGD peak flow. Proposed phase II basin will have eight chambers, four per train. During the proposed final phase, a second identical basin will be constructed. The combined capacity will be 2.0 MGD (average) / 8.0 MGD (peak). The design organic loading rate for the conventional aeration process will be determined but will adhere to the maximum organic loading rate stipulated in TAC 217.154(b)(2) Table F.1. WesTech will provide calculations verifying the oxygen requirements for the facility will be met.

Once aerated, the mixed liquor will flow into the clarifier splitter box via 12-inch overflow pipes from each train.

**4. Clarifiers**

In proposed final phase, the mixed liquor will enter a splitter box, then be diverted to the center wells of the existing 50 ft diameter (13 ft SWD) and 75 ft diameter (13 ft SWD) clarifier, and two proposed 75 ft (13 ft SWD) clarifiers, where the sludge separates from the supernatant. The clarifiers will be sized to meet the San Antonio River Authority's maximum surface loading requirement of 600 gal/day/sf, which is more stringent than the 800 gal/day/sf requirement set by the Texas Commission on Environmental Quality. The required minimum surface area is 10,000 sf. In order to meet SARA's loading requirements, the clarifiers will have outboard launders to transfer the effluent to the proposed filtration system. The combined clarifiers' capacity will be 2.0 MGD/ 4.0 MGD (average/peak). The settled sludge will be pulled from the bottom of the clarifiers by one of three pumps.

**5. Waste/Return Activated Sludge Pumps**

The three waste/return activated sludge pumps are self-priming centrifugal pumps and pull sludge from the bottom of the clarifier and pump to one of two locations. The return activated sludge is pumped back to the plant, downstream of the bar screen at the headworks. The waste activated sludge is mixed with polymer and pumped to sludge

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Final Design cont'd)**

dewatering containers that are dried before being hauled to Gardenville/Martinez II Recycling Facility or Allied Waste (BFI) Tessman Road Municipal Solid Waste Landfill.

**6. Ultraviolet Disinfection**

Once filtered, the treated wastewater will flow into the ultraviolet (UV) disinfection channels for disinfection prior to discharge into Martinez Creek. A second identical channel will be constructed in the final phase. The second UV channel will be 37.1' L x 1.75' W x 2' SWD and the combined capacity of the two channels will be designed to handle the peak flow of 8.0 MGD. Martinez IV WWTP utilizes the Trojan UV 3000B system.

**7. Effluent Flow Measurement**

Effluent flow will be measured by a 24" Parshall flume on the downstream side of the UV disinfection chamber. Treated effluent will flow through the Parshall flume to the discharge piping, and then into Martinez Creek. A staff gauge, located on the Parshall flume, identifies the amount of effluent flowing through the flume. An ultrasonic level meter sends the flume level measurements to an open channel totalizing meter.

**8. Sludge Disposal**

Waste activated sludge (WAS) from the clarifiers will be pumped by a self priming centrifugal pump to a 30 CY mobile sludge dewatering container. Polymer is mixed with the liquid sludge, separating water from the solids in the dewatering container. The

liquid flows through the filter walls and floor in the container. The container is located on a sloped concrete pad and the drained liquid flows out of the container to the drain system connected to the plant lift station through an 8-inch drain line.

Sludge management needs will be evaluated at each expansion to determine additional required capacity (if any) needed to accommodate additional solids production.

The dewatered sludge will be disposed of in one of two ways:

1. Hauled to Martinez II WWTP to be composted and/or heat dried to a Class 'A' level of pathogen reduction, and biosolids will be marketed and distributed back into the wholesale/retail landscaping market. The San Antonio River Authority owns both WWTPs.
2. Hauled to BFI Tessman Road Municipal Solid Waste Landfill for final disposal. This option is only a back-up plan should the new composting/heat drying facility be temporarily unavailable.

**MARTINEZ IV WWTP (WQ0010749-007)**  
**ATTACHMENT 8 - DESCRIPTION OF TREATMENT PROCESS**

**(Proposed Final Design cont'd)**

Additional liquid sludge can be hauled to Martinez II WWTP or Upper WWTP if needed. SARA owns two 6,500-gallon tankers, and one 3,300-gallon pump and haul truck.



Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

Attachment 9  
Treatment Units

Reference: Domestic Technical Report 1.0

Section 2 B

## **Attachment 9**

### **Martinez IV WWTP Type and Dimensions of Treatment Units**

(Existing)

**Martinez IV WWTP construction is planned out in three phases, phase 1 of construction is completed and the plant currently operates in interim phase 1 with a 0.25 MGD design flow.**

#### **Influent Lift Station:**

One (1) 174 GPM (0.25 MGD) Submersible (Jockey) Pump  
Two (2) 694 GPM (1.0 MGD) Submersible Pumps

#### **Headworks:**

One (1) ¼" Multi-Rake Mechanical Screen  
One (1) 1" Spacing Fixed Bar Screen

#### **Aeration Chambers Dimensions:**

Two (2) Chambers: 28' long x 21' wide x 16.5' side water depth  
Each chamber contains 1 STM-Aerotator and is designed for 0.125 MGD average flow and 0.5 MGD peak flow for a combined 0.25 MGD (average) /1.0 MGD (peak) flow.

#### **Clarifier:**

Clarifier 1: 50' Diameter, 13' Side Water Depth

#### **UV Disinfection:**

One (1) Channel: 37.1' Long x 1'-9" Wide x 2' Deep  
Horizontal lamp system to treat 1.0 MGD peak flow

#### **Flow Measurement:**

Flow is measured through a 12" Parshall Flume.

#### **Generator:**

Caterpillar Diesel, Model 250, 250 kW Capacity

#### **Sludge Dewatering:**

Two (2) Dewatering Boxes 30 Cubic Yards

## **Attachment 9**

### **Martinez IV WWTP Type and Dimensions of Treatment Units**

#### **(Proposed Interim II)**

**Martinez IV WWTP construction is planned out in three phases, phase 1 of construction is completed and the plant currently operates in interim phase I, the following information is for the interim phase II buildout with a 0.91 MGD design flow.**

#### **Influent Lift Station:**

One (1) Submersible (Jockey) Pump (Pump size to be determined) (Proposed replaces existing)  
Two (2) Submersible Pumps (Pump size to be determined) (Proposed replaces existing)

#### **Headworks:**

One (1) ¼" Multi-Rake Mechanical Screen (Existing)  
One (1) 1" Spacing Fixed Bar Screen (Existing)

#### **Aeration Chambers Dimensions:**

Two (2) Chambers: 28' Long x 21' Wide x 16.5' Side Water Depth (Existing)  
Six (6) Chambers: 28' Long x 21' Wide x 16.5' Side Water Depth (Proposed)  
Each chamber contains 1 STM-Aerotator and is designed for 0.125 MGD average flow and 0.5 MGD peak flow for a combined 1.0 MGD (average) /4.0 MGD (peak) flow.

#### **Clarifier:**

Clarifier 1: 50' Diameter, 13' Side Water Depth (Existing)  
Clarifier 2: 75' Diameter, 13' Side Water Depth (Proposed)  
The two clarifiers' combined capacity will be 0.91 MGD average flow and 3.64 MGD peak flow.

#### **UV Disinfection:**

One (1) Channel: 37.1' Long x 1'- 9" Wide x 2' Deep  
Horizontal lamp system to treat 1.0 MGD peak flow (Existing)  
Reduction baffles removed and additional lamps added to treat 4.0 MGD peak flow (Proposed)

#### **Flow Measurement:**

Flow is measured through a 12" Parshall Flume (Existing)

#### **Generator:**

Caterpillar Diesel, Model 250, 250 kW Capacity (Existing)  
(Existing generator will be evaluated to determine additional capacity required)

**Attachment 9**

**Martinez IV WWTP  
Type and Dimensions of Treatment Units**

**(Proposed Interim II cont'd)**

**Sludge Dewatering:**

Two (2) Dewatering Boxes 30 Cubic Yards (Existing)  
(Process will be evaluated to determine if additional capacity required)

## **Attachment 9**

### **Martinez IV WWTP Type and Dimensions of Treatment Units**

#### **(Proposed Final Design)**

**Martinez IV WWTP construction is planned out in three phases, phase 1 of construction is completed and the plant currently operates in interim phase I, the following information is for the final build out with a 2.0 MGD design flow.**

#### **Influent Lift Station:**

(Existing) Wet Well 1:           One (1) Submersible (Jockey) Pump (Pump size to be determined)  
  Two (2) Submersible Pumps (Pump size to be determined)  
(Proposed) Wet Well 2:       One (1) Submersible (Jockey) Pump (Pump size to be determined)  
  Two (2) Submersible Pumps (Pump size to be determined)

#### **Headworks:**

One (1) ¼" Multi-Rake Mechanical Screen (Existing)  
One (1) ¼" Multi-Rake Mechanical Screen (Proposed)  
One (1) 1" Spacing Fixed Bar Screen (Existing)  
One (1) Grit Removal System (Type and size to be determined)

#### **Aeration Chambers Dimensions:**

Eight (8) Chambers:           28' Long x 21' Wide x 16.5' Side Water Depth (Existing)  
Eight (8) Chambers:           28' Long x 21' Wide x 16.5' Side Water Depth (Proposed)  
Each chamber contains 1 STM-Aerotator and is designed for 0.125 MGD average flow and 0.5 MGD peak flow for a combined 2.0 MGD (average) /8.0 MGD (peak) flow.

#### **Clarifier:**

Clarifier 1:                       50' Diameter, 13' Side Water Depth (Existing)  
Clarifier 2:                       75' Diameter, 13' Side Water Depth (Existing)  
Clarifier 3 &4:                   75' Diameter, 13' Side Water Depth (Proposed)  
The four clarifiers' combined capacity will be 2.0 MGD average flow and 8.0 MGD peak flow.  
(Proposed) One (1) Filtration System (Type and size to be determined)

#### **UV Disinfection:**

(Existing) One (1) Channel:     37.1' Long x 1'- 9" Wide x 2' Deep  
Horizontal lamp system to treat 4.0 MGD peak flow  
(Proposed) One (1) Channel:   37.1' Long x 1'- 9" Wide x 2' Deep  
Horizontal lamp system to treat 4.0 MGD peak flow  
Combined lamp system to treat 8.0 MGD peak flow

**Attachment 9**

**Martinez IV WWTP  
Type and Dimensions of Treatment Units**

**(Proposed Final Design cont'd)**

**Flow Measurement:**

Removal of 12" Parshall Flume nested inside 24" Parshall Flume (Proposed)

**Generator:**

Caterpillar Diesel, Model 250, 250 kW Capacity (Existing)  
(Existing generator will be evaluated to determine additional capacity required)

**Sludge Dewatering:**

Two (2) Dewatering Boxes 30 Cubic Yards (Existing)  
(Process will be evaluated to determine if additional capacity required)

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 10

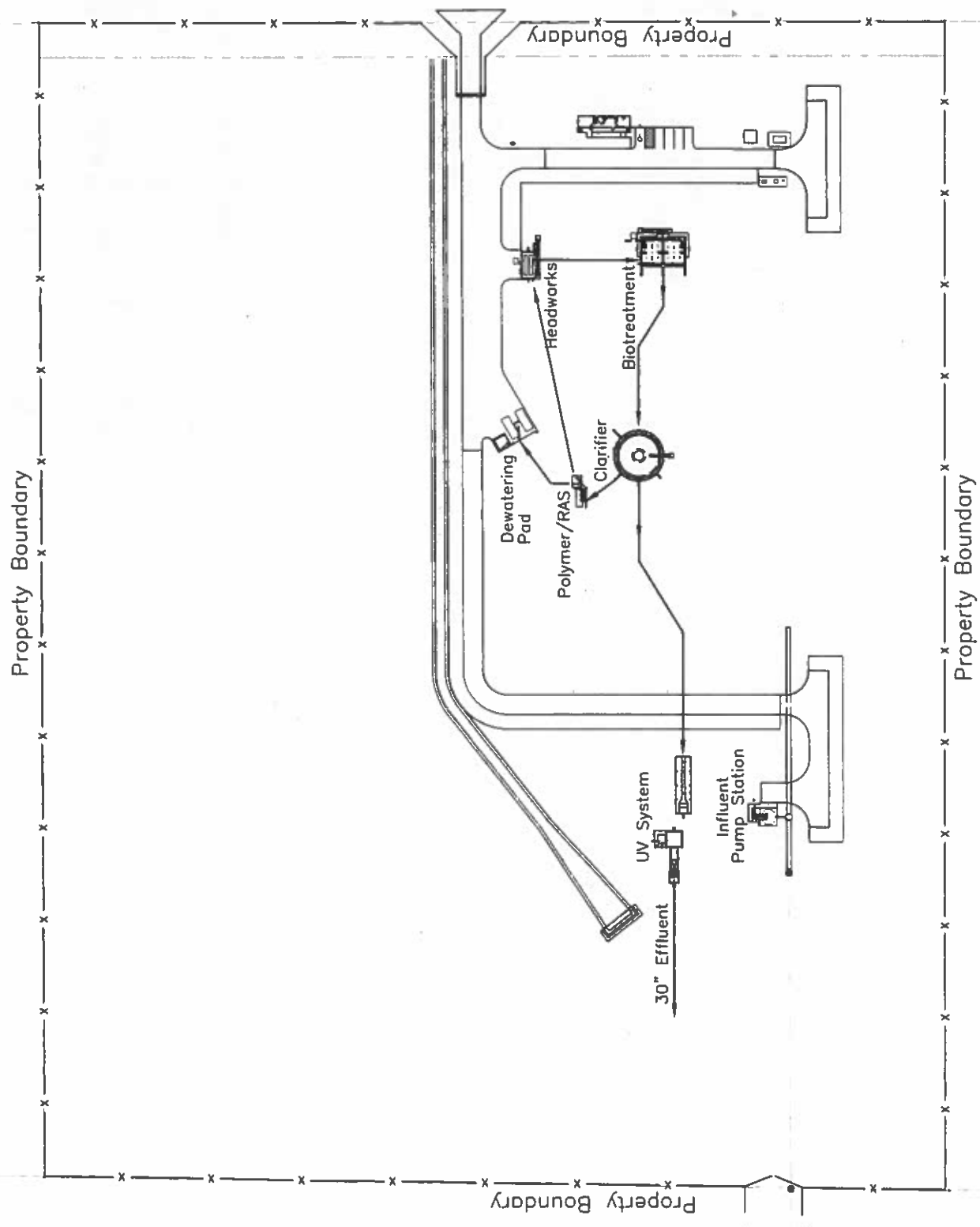
### Process Flow Diagrams

Reference: Domestic Technical Report 1.0

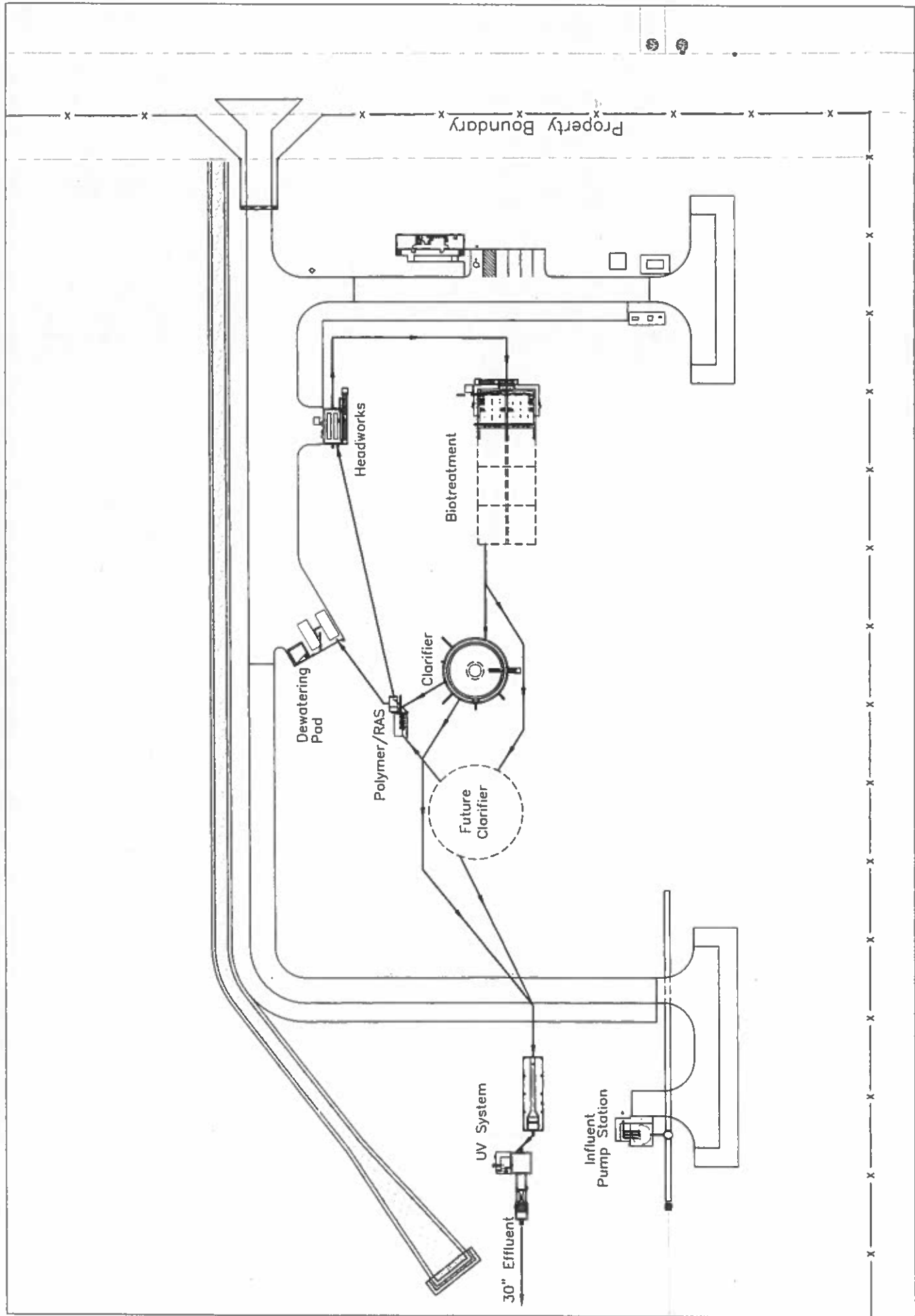
### Section 2 C

MARTINEZ IV  
FLOW DIAGRAM/Phase 1

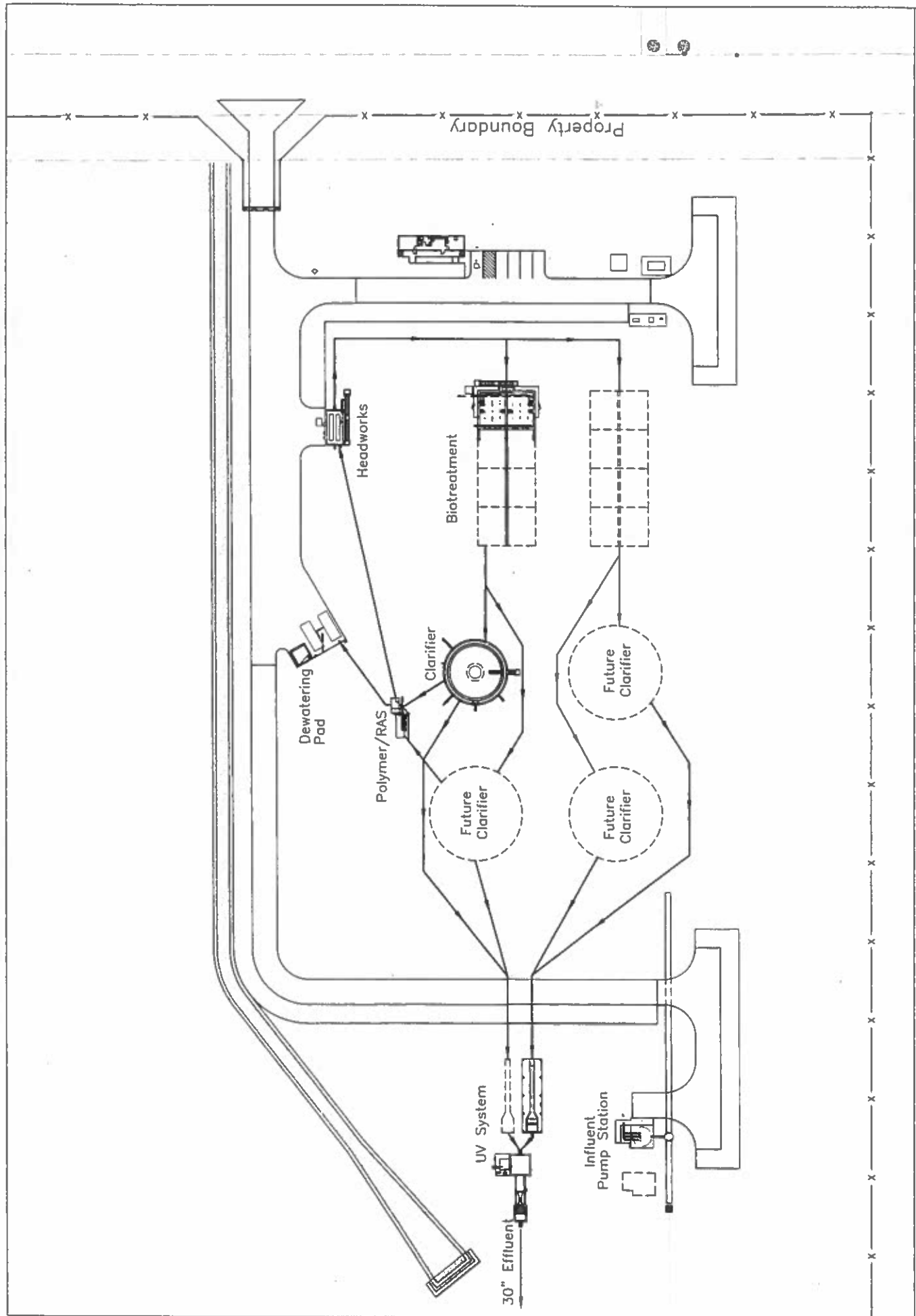
Attachment 10A







# MARTINEZ IV FLOW DIAGRAM/Phase II



# MARTINEZ IV FLOW DIAGRAM/Final Phase

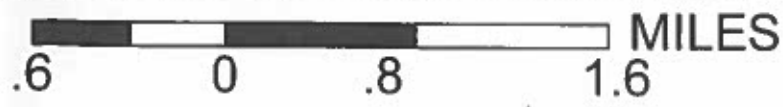
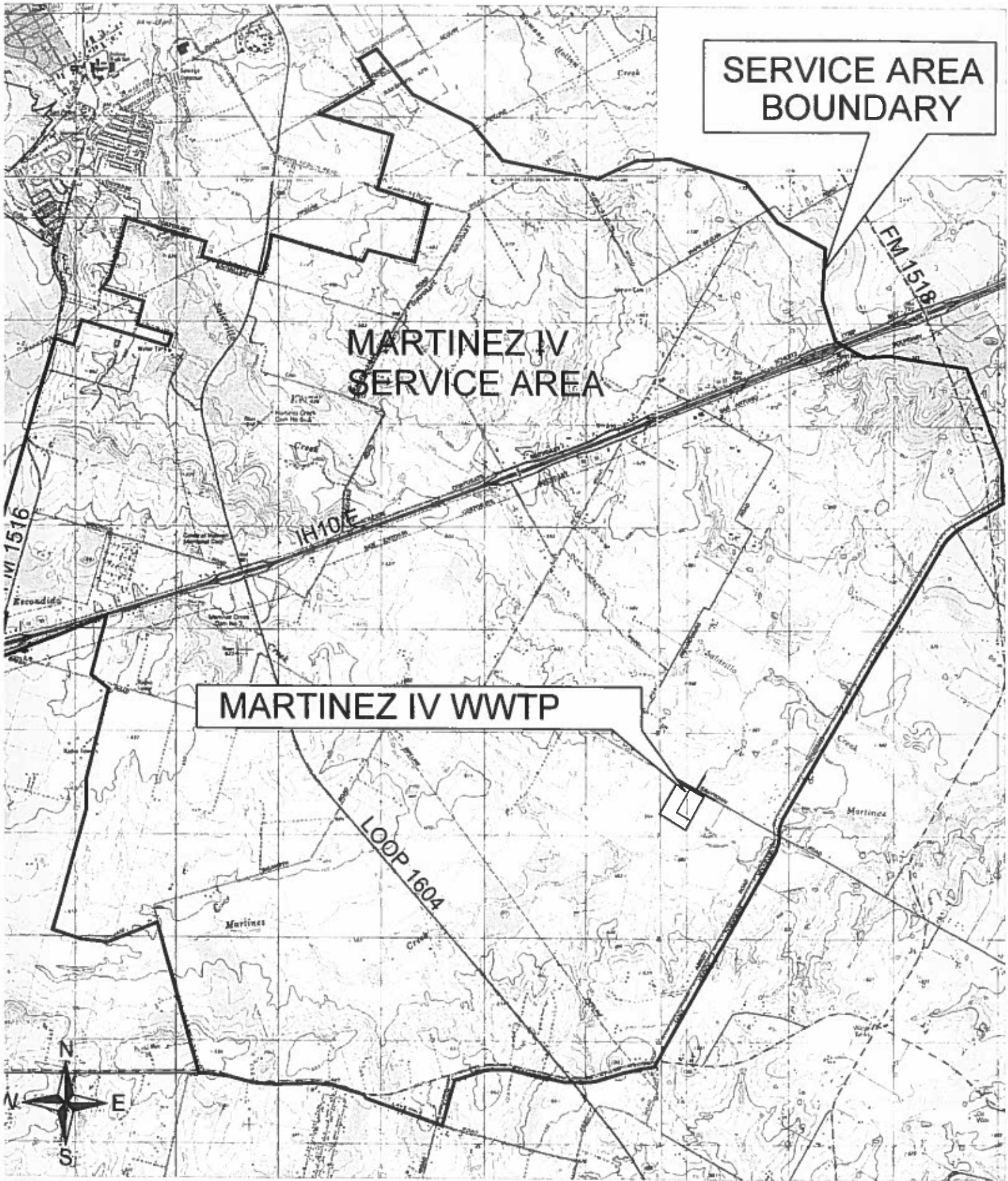
Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 11

### Site Drawing

Reference: Domestic Technical Report 1.0

### Section 3



Martinez IV WWTP Site  
Drawing

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 12

### Permit Specific Requirements

Reference: Domestic Technical Report 1.0

### Section 6 C

**Attachment 12 A**

**Permit Specific Requirements**

**Other Requirements – Item 6**

**Reference: Domestic Technical Report 1.0**

**Section 6 C**

## Martinez IV WWTP

### Attachment 12 A

TPDES Permit No. WQ0010749007

#### OTHER REQUIREMENTS

ITEM 6 – Reporting requirements according to 30 TAC Sections 319.1-319.11 and any additional effluent reporting requirements contained in this permit are suspended from the effective date of the permit until plant startup or discharge from the facility described by this permit, whichever occurs first. The permittee shall provide written notice to the TCEQ Regional Office (MC Region 13) and the Applications Review and Processing Team (MC 148) of the Water Quality Division at least forty-five (45) days prior to plant startup or anticipated discharge, whichever occurs first, and prior to completion of each additional phase on Notification of Completion Form 20007.

Attached is a copy of the Notification of Completion/Phase of Wastewater Treatment Facility Form 20007, mailed on July 3, 2018 to the Texas Commission on Environmental Quality Applications Review and Processing Team (MC 148) and Ms. Joy Thurston-Cook at Regional Office 13. This notification was sent at least forty-five days prior to plant startup date of April 2, 2019, completing the notification requirements.



UT-MRTIV-TCEQ-NPDES-DMR-CORR

July 3, 2018

**CERTIFIED MAIL: RETURN RECEIPT REQUESTED (7017 1450 0001 4144 6405)**

Texas Commission on Environmental Quality  
Applications Review and Processing Team (MC 148)  
P.O. Box 13087  
Austin, Texas 78711-3087

Reference: Martinez IV WWTP; Permit No. WQ0010749007; TX0129861

Dear Sir/Madam

Enclosed is the Notification of Completion/Phase of Wastewater Treatment Facility form for the above referenced plant scheduled to be placed in operation on September 1, 2018.

Please call Daniel Flores at (210) 302-4200, should you have any questions and or require any additional information.

Sincerely,

DANIEL FLORES  
Utilities Operations Superintendent

DF:ddv

Enclosure

Cc: Joy Thurston-Cook, Texas Commission on Environmental Quality, Region 13,  
14250 Judson Rd., San Antonio, Texas 78233

**EXECUTIVE  
COMMITTEE**



**CHAIRMAN**  
Michael W. Lackey, P.E.

**VICE CHAIRMAN**  
Durrell T. Brownlow, Ph.D.

**SECRETARY**  
Lourdes Galvan

**TREASURER**  
Jim Campbell

**MEMBERS-AT-LARGE**  
Gaylon J. Oehlke  
James Fuller



**BOARD OF DIRECTORS**

**BEXAR COUNTY  
DISTRICT 1**  
Jerry G. Gonzales

**DISTRICT 2**  
Lourdes Galvan

**DISTRICT 3**  
Michael W. Lackey, P.E.

**DISTRICT 4**  
Jim Campbell

**AT-LARGE**  
Hector R. Morales  
Deb Bolner Prost

**WILSON COUNTY**  
Durrell T. Brownlow, Ph.D.  
John J. Flietler

**KARNES COUNTY**  
H.B. Ruckman, III  
Gaylon J. Oehlke

**GOLIAD COUNTY**  
James Fuller  
Alicia Lott Cowley



**GENERAL MANAGER**  
Suzanne Scott





**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
NOTIFICATION OF COMPLETION/PHASE OF WASTEWATER  
TREATMENT FACILITY**

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

**Current Permit Information**

What is the TCEQ Water Quality Permit Number? WQ0010749007

What is the EPA I.D. Number? TX 0129861

Current Name on Permit: Martinez IV Wastewater Treatment Facility

**Notification**

Indicate the phase the facility will be operating.

- ☒ Interim Phase I Flow
- ☐ Interim Phase II Flow
- ☐ Interim Phase III Flow
- ☐ Final Phase Flow

Indicate the date that the operation began or will begin operating under the selected phase:

Month/Day/Year: September 1, 2018

Comments:

**Certification and Signature**

Responsible Official Name (Print or Type): Suzanne Scott

Responsible Official Title: General Manager

Responsible Official Email: sbscott@sara-tx.org

I certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink):

Date:

6/29/18

Email completed form to:  
or

WQ-ARPTeam@tceq.texas.gov

Fax completed form to:  
or mail completed form to:

**512-239-0884**  
Texas Commission on Environmental Quality  
Applications Review and Processing Team (MC-148)  
P.O. Box 13087  
Austin TX 78711-3087

## **Instructions for Notification of Completion/Phase Of Wastewater Treatment Facility**

---

### **Current Permit Information**

Provide your Permit Number. This number will start with WQ followed by 10 digits. The number can be found on the top right-hand corner of your issued permit.

For Texas Pollutant Discharge Elimination Permits (TPDES), provide the EPA ID number. This number will start with TX followed by 7 digits. The number can be found on the top right-hand corner of your issued permit.

Provide the current name that is on your permit. This information can be found on the first page of your permit.

Indicate the phase of operation you will be operating under. Provide the date the facility will begin operating in that phase. Date should be provided as month/day/year.

### **Signature Requirements**

In accordance with 30 Texas Administrative Code §305.44 relating to Signatories to Applications, all applications shall be signed as follows:

For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 12 B

### Permit Specific Requirements

### Other Requirements – Item 7

Reference: Domestic Technical Report 1.0

## Section 6 C

## **Martinez IV WWTP**

### **Attachment 12 B**

**TPDES Permit No. WQ0010749007**

#### **OTHER REQUIREMENTS**

**ITEM 7 – Prior to construction of the treatment facilities, the permittee shall submit to the TCEQ Wastewater Permitting Section (MC 148) a summary submittal letter in accordance with the requirements in 30 TAC Section 217.6(c). If requested by the Wastewater Permitting Section, the permittee shall submit plans, specifications, and a final engineering design report which comply with 30 TAC Chapter 217, Design Criteria for Domestic Wastewater Systems. The permittee shall clearly show how the treatment system will meet the permitted effluent limitations required on Page 2, 2a, and 2b of this permit.**

**Attached is a copy of the Summary Transmittal Letter mailed on August 17, 2018 to Mr. Louis C. Herrin III, P.E. at MC 148, Texas Commission on Environmental Quality. Attached were electronic copies of all items needed to complete requirements listed in 30 TAC 217.6(c).**



Innovative approaches  
Practical results  
Outstanding service

9601 McAllister Freeway, Suite 1008 • San Antonio, Texas 78216 • 210-298-3800 • FAX 210-298-3801 [www.freese.com](http://www.freese.com)

August 17, 2018

Mr. Louis C. Herrin III, P.E.  
MC 148  
Texas Commission on Environmental Quality (TCEQ)  
P.O. Box 13807  
Austin, Texas 78711-3087

Re: Chapter 217.6 Summary Transmittal Letter  
CC: Paul Brochi, P.E.

**Permittee:** San Antonio River Authority  
**Permit Number:** WQ0010749007  
**Project Names:** (1) Martinez Creek IV – Design Build Wastewater Treatment Plant Fiscal Year 2017  
(2) Martinez Creek IV – Design Build Collection Line and Lift Station  
**County:** Bexar

Dear Mr. Herrin:

To complete the requirements listed in 30 TAC §217.9 we are providing the Texas Commission on Environmental Quality (TCEQ) with a copy of the Texas Water Development Board (TWDB) approval of the plans and specifications for the above referenced projects.

Included in the attached USB are electronic copies of the following TWDB approved documents for your records:

- (1) Approval letter from TWDB (attached)
- (2) Approved Engineering Design Calculations
- (3) Approved Engineering Feasibility Report
- (4) Approved Collection Line and Lift Station Plans
- (5) Approved Collection Line and Lift Station Specifications
- (6) Approved WWTP Plans
- (7) Approved WWTP Specifications
- (8) Approved Design-Build Contract Amendment

Please let us know if you have any questions or require further information.

Sincerely,

Rob Jenkins, P.E.  
Project Manager  
210-298-3805

# Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.  
Austin, TX 78711-3231, [www.twdb.texas.gov](http://www.twdb.texas.gov)  
Phone (512) 463-7847, Fax (512) 475-2053

March 13, 2018

Mr. Rudy R. Farias  
Project and Planning Specialist  
P. O. Box 839980  
San Antonio, TX 78283-9980

Re: San Antonio River Authority (Authority)  
Clean Water State Revolving Fund (CWSRF) Project Number (No.) 73760  
Martinez IV Wastewater Treatment Plant (WWTP) and Outfall  
CID 01 B: Martinez IV Collection System and Lift Station Design-Build  
Approval of Engineering Feasibility Report (EFR);  
Plan and Specification Approval;  
Concurrence with Notice to Proceed for Martinez IV Collection System and Outfall;  
Change Order (Amendment) No. 3 Approval

Dear Mr. Farias:

Texas Water Development Board (TWDB) staff has reviewed the Martinez IV WWTP and Collection System Engineering Feasibility Report and are issuing approval for the report.

The revised plans and specifications for the Martinez IV Collection System and Lift Station have been reviewed and are approved for construction under the Authority's design-build contract with MGC Contractors, Inc. The plans and specifications for the WWTP were completed and submitted by the engineering firm of Freese & Nichols, Inc.

Change Order No. 1 (Amendment No. 1) incorporating TWDB Supplemental Contract Conditions, Change Order No. 2 (Amendment No. 2) incorporating required environmental conditions into Martinez IV Wastewater Treatment Plant, and Change Order No. 3 (Amendment No. 3) incorporating environmental conditions into the design-build contract has been agreed to by the Authority and MGC Contractors, Inc. and must be included as part of the contract.

With this letter, TWDB concurs with the Authority issuing a notice to proceed for the Martinez IV Collection System and Lift Station portions of the design build contract. With this approval, the Martinez IV Wastewater Treatment Plant, Outfall, Collection System, and Lift Station are approved for construction under your design build contract.

Our Mission	:	Board Members
To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas	:	Peter Lake, Chairman   Kathleen Jackson, Board Member   Brooke T. Paup, Board Member
	:	Jeff Walker, Executive Administrator

Mr. Rudy Farias  
March 13, 2018  
Page 2

This letter addresses the approval of plans and specifications as required for a TWDB funded project and does not preempt any approval that may be required by other Federal, State, or Local governmental authorities. This approval does not relieve the design engineer of his legal responsibility for the integrity of the design. The materials and methods of construction are to be in accordance with the specifications provided by the engineer.

Please be reminded that the TWDB may not fund testing, remediation, removal, disposal, or related works for contaminated or potentially contaminated materials. However, the Authority should ensure that, if found, such materials are tested, removed, and disposed of in accordance with application Federal and State laws.

Please be reminded that all change orders should be discussed with TWDB staff prior to implementing the change. Contact environmental reviewer Kristin Miller to discuss any changes that may impact the environmental determination issued for the contract. Ms. Miller can be contacted by phone at: (512) 475-1701 or by electronic mail at: [kristin.miller@twdb.texas.gov](mailto:kristin.miller@twdb.texas.gov).

Now that the contract is in construction phase, Jesse Milonovich, P.E. will be your contact. Should you have any questions, please contact Mr. Milonovich by phone at (512) 463-8657 or by electronic mail at: [jesse.milonovich@twdb.texas.gov](mailto:jesse.milonovich@twdb.texas.gov). You may also contact Dain Larsen, Team 5 Manager, at (512) 463-1618 or by electronic mail at: [dain.larsen@twdb.texas.gov](mailto:dain.larsen@twdb.texas.gov).

Please notify TWDB of delays to the timely completion of this project.

Respectfully,



JoAnne Duncan, P.E.  
Regional Water Project Development; Team 2 - Brazos Region  
Water Supply and Infrastructure

JD:dur

cc: via electronic mail:  
Amy Middleton, P.E.; SARA at: [amiddleton@sara-tx.org](mailto:amiddleton@sara-tx.org)  
Louis Herrin III, P.E.; TCEQ at: [louis.herrin@tceq.texas.gov](mailto:louis.herrin@tceq.texas.gov)

Attachment 12 C

Permit Specific Requirements

Other Requirements – Item 11

Reference: Domestic Technical Report 1.0

Section 6 C



## Martinez IV WWTP

### Attachment 12 C

TPDES Permit No. WQ0010749007

#### OTHER REQUIREMENTS

ITEM 11 – Within 120 days from start-up of the facility, the permittee shall complete Attachment A with the analytical results for Outfall 001. The completed tables with the results of these analysis and laboratory reports shall be submitted to the Municipal Permits Team, Wastewater Permitting Section MC 148, TCEQ Water Quality Division. Based on a technical review of the submitted analytical results, an amendment maybe initiated by TCEQ staff to include additional effluent limitations and/or monitoring requirements. Test methods utilized to complete the tables shall be according to the test procedures specified in the Definitions and Standard Permit Conditions section of the permit and sensitive enough to detect the parameters listed in Attachment A at the minimum analytical level (MAL).

Attached is a copy of the letter mailed on June 20, 2019, that accompanied the Pollutant Analyses Requirements (Domestic Worksheet 4.0) with completed tables with results of analysis and laboratory reports required to fulfill item 11 of the Other Requirements section of the permit. This letter and attachments were mailed to the Municipal Permits Team, Wastewater Permitting Section MC 148, TCEQ Water Quality Division within 120 days from start-up date of April 2, 2019. Please refer to Domestic Worksheet 4.0 and attachment 20-Pollutant Analyses Requirements of this permit renewal application to review copies of the completed tables with results of analysis and laboratory reports submitted with the aforementioned letter.



**SAN ANTONIO  
RIVER AUTHORITY**

UT-MRTIV-TCEQ-NPDES-DMR-CORR

June 20, 2019

**CERTIFIED MAIL: RETURN RECEIPT REQUESTED (7017 3380 0000 7513 6737)**

Texas Commission on Environmental Quality  
Municipal Permits Team  
Wastewater Permitting Section (MC148)  
Water Quality Division  
P.O. Box 13087  
Austin, Texas 78711-3087

Reference: Martinez IV Wastewater Treatment Plant, RN105285506  
TPDES Permit No. WQ0010749-007 and NPDES No. TX0129861;  
San Antonio River Authority CN600790620; Tax No. 1-74-6011311-5

Subject: Pollutant Analyses Requirements (Domestic Worksheet 4.0)

Dear Sir/Madam

Enclosed is the completed tables with the results of the analysis and laboratory reports as required by the above referenced permit page 32 item 11 (Enclosed). The start-up date for the Martinez IV WWTP was April 2, 2019.

Please call Daniel Flores at (210) 302-4200, should you have any questions and or require any additional information.

Sincerely,

**DANIEL FLORES**  
Utilities Operations Superintendent

DF:ddv

Enclosure

**EXECUTIVE  
COMMITTEE**



**CHAIRMAN**

*Darrell T. Brownlow, Ph.D.*

**VICE CHAIRMAN**

*Michael W. Lackey, P.E.*

**SECRETARY**

*Lourdes Galvan*

**TREASURER**

*Jim Campbell*

**MEMBERS AT-LARGE**

*Gaylon J. Oehlke  
James Fuller, M.D.*



**BOARD OF DIRECTORS**

**BEXAR COUNTY**

**DISTRICT 1**

*Jerry G. Gonzales*

**DISTRICT 2**

*Lourdes Galvan*

**DISTRICT 3**

*Michael W. Lackey, P.E.*

**DISTRICT 4**

*Jim Campbell*

**AT-LARGE**

*Hector R. Morales  
Deb Bolner Probst*

**WILSON COUNTY**

*Darrell T. Brownlow, Ph.D.  
John J. Flieller*

**KARNES COUNTY**

*H.B. Ruckman, III  
Gaylon J. Oehlke*

**GOLIAD COUNTY**

*James Fuller, M.D.  
Alicia Lott Cowley*



**GENERAL MANAGER**

*Suzanne Scott*

effluent limitations required on Page 2, 2a, and 2b of this permit.

8. The permittee is authorized to haul sludge from the wastewater treatment facility, by a licensed hauler, to the San Antonio River Authority Martinez Wastewater Treatment Plant, Permit No. WQ0010749004, or any other facility authorized by the TCEQ to accept sludge, for final processing and disposal.

The permittee shall keep records of all sludge removed from the wastewater treatment plant site, and these records shall include the following information:

- a. The volume of sludge hauled;
- b. The date(s) that sludge was hauled;
- c. The identity of haulers; and
- d. The permittee, TCEQ permit number, and location of the facility to which the sludge is hauled.

These records shall be maintained on a monthly basis and shall be reported to the TCEQ Regional Office (MC Region 13) and the TCEQ Water Quality Compliance Monitoring Team (MC 224) of the Enforcement Division by September 30 of each year.

9. The permittee shall provide facilities for the protection of its wastewater treatment facility from a 100-year flood.
10. In accordance with 30 TAC §319.9, a permittee that has at least twelve months of uninterrupted compliance with its bacteria limit may notify the commission in writing of its compliance and request a less frequent measurement schedule. To request a less frequent schedule, the permittee shall submit a written request to the TCEQ Wastewater Permitting Section (MC 148) for each phase that includes a different monitoring frequency. The request must contain all of the reported bacteria values (Daily Avg. and Daily Max/Single Grab) for the twelve consecutive months immediately prior to the request. If the Executive Director finds that a less frequent measurement schedule is protective of human health and the environment, the permittee may be given a less frequent measurement schedule. For this permit, 5/week may be reduced to 3/week in the Interim I phase and Interim II phase and daily may be reduced to 5/week in the Final phase. **A violation of any bacteria limit by a facility that has been granted a less frequent measurement schedule will require the permittee to return to the standard frequency schedule and submit written notice to the TCEQ Wastewater Permitting Section (MC 148).** The permittee may not apply for another reduction in measurement frequency for at least 24 months from the date of the last violation. The Executive Director may establish a more frequent measurement schedule if necessary to protect human health or the environment.
11. Within 120 days from the start-up of the facility, the permittee shall complete Attachment A with the analytical results for Outfall 001. The completed tables with the results of these analysis and laboratory reports shall be submitted to the Municipal Permits Team, Wastewater Permitting Section MC 148, TCEQ Water Quality Division. Based on a technical review of the submitted analytical results, an amendment may be initiated by TCEQ staff to include additional effluent limitations and/or monitoring requirements. Test methods utilized to complete the tables shall be according to the test procedures specified in the Definitions and Standard Permit Conditions section of the permit and sensitive enough to detect the parameters listed in Attachment A at the minimum analytical level (MAL).

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 13

### Pollutant Analysis of Treated Effluent

Reference: Domestic Technical Report 1.0

### Section 7



# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019 Approved by: <i>Chuck Wallgren</i>

Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Ammonia-N (ISE)	0.3	mg/L	0.1	04/25/2019 12:45	SM 4500-NH3 D	CRM
CBOD5	<2	mg/L	2	04/24/2019 13:29	SM 5210 B	VBW
Chloride	317	mg/L	1	04/25/2019 13:15	EPA 300.0	PLP
Conductivity, Specific	1,928	µmhos/cm at 25° C	1	04/24/2019 14:20	SM 2510B	JAS
Nitrate-N	13.5	mg/L	0.1	04/25/2019 13:15	EPA 300.0	PLP
Phosphorus, Total	3.23	mg/L	0.10	04/26/2019 06:10	SM 4500-P/B/E	JAS
Sulfate	205	mg/L	1	04/25/2019 13:15	EPA 300.0	PLP

Test Description	Quality Assurance Summary					
	Precision	Limit	LCL	MS	MSD	LCS Limit
Ammonia-N (ISE)	<1	10	95	108	108	102
CBOD5	<1	23	N/A	N/A	N/A	181
Chloride	1	10	92	99	98	103
Conductivity, Specific	N/A	N/A	N/A			
Nitrate-N	<1	20	70	101	101	106
Phosphorus, Total	2	10	94	99	97	112
Sulfate	3	10	93	100	97	103

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits

QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcslab.net](mailto:chuck@pcslab.net)

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Total Dissolved Solids	1.052	mg/L	10	04/29/2019 11:50	SM 2540C	JAS
Total Suspended Solids	2	mg/L	1	04/24/2019 13:30	SM 2540 D	CFS
Fluoride	0.26	mg/L	0.10	04/25/2019 13:15	EPA 300.0	PLP
Kjeldahl-N, Total	2	mg/L	1	04/25/2019 09:00	SM 4500-N B/E	CRM
Alkalinity, Total	184	mg/L	10	04/24/2019 12:00	SM 2320 B	CRM
Arsenic/ICP MS	0.0008	mg/L	0.0005	04/29/2019 12:16	EPA 200.8	DJL
Barium/ICP (Total)	0.044	mg/L	0.003	04/30/2019 14:42	EPA 200.7 / 6010 B	DJL

Test Description	Quality Assurance Summary					
	Precision	Limit	LCL	MS	MSD	UCL
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A
Total Suspended Solids	<1	10	N/A	N/A	N/A	N/A
Fluoride	<1	10	83	100	100	108
Kjeldahl-N, Total	5	10	92	96	101	109
Alkalinity, Total	<1	10	95	101	101	107
Arsenic/ICP MS	2	20	70	109	107	130
Barium/ICP (Total)	<1	20	75	89	89	125
						105
						85 - 115

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
All data is reported on an "As Is" basis unless designated as "Dry Wt."  
RL = Reporting Limits  
QC Data Reported in %, Except BOD in mg/L

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0835	PCS Sample #: 551100 Date/Time Received: 04/24/2019 11:35 Report Date: 05/13/2019 Approved by: <i>Chuck Wallgren</i>

Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
Oil and Grease (H.E.M.)		<5.0	mg/L	5	04/26/2019 11:30	EPA 1664	EMV
Mercury/CVAFS		<0.000005	mg/L	0.000005	05/09/2019 10:20	EPA 245.7	DJL
Phenolics	+	See Attached					Pace Analytical Services - Dallas
Cyanide, Amenable	+	See Attached					Pace Analytical Services - Dallas
Volatiles 624		See Attached					Pace Analytical Services - Dallas

Test Description	Precision	Limit	Quality Assurance Summary				LCS	LCS Limit
			LCL	MS	MSD	UCL		
Oil and Grease (H.E.M.)	2	18	N/A	N/A	N/A	N/A	87	78 - 114
Mercury/CVAFS	2	20	70			130		
Phenolics	See Attached Report for Quality Assurance Information							
Cyanide, Amenable	See Attached Report for Quality Assurance Information							
Volatiles 624	See Attached Report for Quality Assurance Information							

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

+ Subcontract Work - NELAP Certified Lab

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits

QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcslab.net](mailto:chuck@pcslab.net)

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.



# POLLUTION CONTROL SERVICES

Chain of Custody Number

551099

Stamp 1<sup>st</sup> sample and COC as same number

## MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

| CUSTOMER INFORMATION   
   
   
  |              |                |                              | REPORT INFORMATION   |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |       
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
---
--
--|--------------|----------------|------------------------------|--|--|--|--|--|--|--------|-----------|-----------|--------------|--------------|--------|--------|-----------|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|--|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|--|--|---|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--
---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--
--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|--------------|----------------|--|---------------------------------------|---|--|--|--|--|----------------|
| Name: San Antonio River Authority  
   
   
  |              |                |                              | Attention: Russell Neal  |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Phone: (210) 844-0204  
   
   
  |              |                |                              | Fax: (210) 661-9324  |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| SAMPLE INFORMATION   
   
   
  |              |                |                              | Requested Analysis   |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Project Information:   
   
   
  |              |                |                              | Instructions/Comments:   |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| TCEQ Major Permit Renewal<br>Report "Soils" <input type="checkbox"/> As Is <input type="checkbox"/> Dry Wt.  
   
   
  |              |                |                              | *Al, Ba, Be, Cd, Cr, Cu, Ni, Zn, SbMS, AsMS, PbMS, SeMS, AgMS, TMS |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Client / Field Sample ID   
   
   
  |              |                |                              | PCS Sample Number  |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| <table border="1"> <thead> <tr> <th rowspan="2">Collected</th> <th rowspan="2">Date</th> <th rowspan="2">Time</th> <th rowspan="2">Field Chlorine Residual mg/L</th> <th rowspan="2">Composite or Grab</th> <th colspan="2">Matrix</th> <th colspan="2">Container</th> <th rowspan="2">Preservative</th> </tr> <tr> <th>Type</th> <th>Number</th> <th>Matrix</th> <th>Container</th> </tr> </thead> <tbody> <tr> <td>Start: 4-23-19</td> <td>End: 4-24-19</td> <td>Start: 7:30 AM</td> <td></td> <td><input checked="" type="checkbox"/> C</td> <td><input checked="" type="checkbox"/> NPW</td> <td><input checked="" type="checkbox"/> DW</td> <td><input checked="" type="checkbox"/> HNO<sub>3</sub></td> <td><input checked="" type="checkbox"/> H<sub>2</sub>SO<sub>4</sub></td> <td><input checked="" type="checkbox"/> HNO<sub>3</sub></td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:35 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Soil</td> <td><input checked="" type="checkbox"/> WW</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> LW</td> <td><input checked="" type="checkbox"/> ICE</td> <td><input checked="" type="checkbox"/> H<sub>2</sub>SO<sub>4</sub></td> <td><input checked="" type="checkbox"/> HNO<sub>3</sub></td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start:
8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/>
G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td>
<td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td> <td>End: 4-24-19</td> <td>Start: 8:55 AM</td> <td></td> <td><input checked="" type="checkbox"/> G</td> <td><input checked="" type="checkbox"/> Other</td> <td><input checked="" type="checkbox"/> Sludge</td> <td><input checked="" type="checkbox"/> NaOH</td> <td><input checked="" type="checkbox"/> H<sub>3</sub>PO<sub>4</sub></td> <td><input checked="" type="checkbox"/> NaOH</td> </tr> <tr> <td>Start: 4-24-19</td></tr></tbody></table> |              |                |                              | Collected  | Date                                       | Time                                       | Field Chlorine Residual mg/L                         | Composite or Grab  | Matrix   |        | Container |           | Preservative | Type         | Number | Matrix | Container | Start: 4-23-19 | End: 4-24-19 | Start: 7:30 AM |  | <input checked="" type="checkbox"/> C | <input checked="" type="checkbox"/> NPW | <input checked="" type="checkbox"/> DW | <input checked="" type="checkbox"/> HNO <sub>3</sub> | <input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> | <input checked="" type="checkbox"/> HNO <sub>3</sub> | Start: 4-24-19 | End: 4-24-19 | Start: 8:35 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Soil | <input checked="" type="checkbox"/> WW | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> LW | <input checked="" type="checkbox"/> ICE | <input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> | <input checked="" type="checkbox"/> HNO <sub>3</sub> | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  |
<input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input
checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 | End: 4-24-19 | Start: 8:55 AM |  | <input checked="" type="checkbox"/> G | <input checked="" type="checkbox"/> Other | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH | Start: 4-24-19 |
| Collected  
   
   
  | Date         | Time           | Field Chlorine Residual mg/L |  |  |  |  |  | Composite or Grab                                    | Matrix |           | Container |              | Preservative |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
|  
   
   
  |              |                |                              | Type   | Number                                     | Matrix                                     | Container  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-23-19   
   
   
  | End: 4-24-19 | Start: 7:30 AM |                              | <input checked="" type="checkbox"/> C                              | <input checked="" type="checkbox"/> NPW    | <input checked="" type="checkbox"/> DW     | <input checked="" type="checkbox"/> HNO <sub>3</sub> | <input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> | <input checked="" type="checkbox"/> HNO <sub>3</sub> |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:35 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Soil   | <input checked="" type="checkbox"/> WW     | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> LW     | <input checked="" type="checkbox"/> ICE              | <input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> | <input checked="" type="checkbox"/> HNO <sub>3</sub> |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  | End: 4-24-19 | Start: 8:55 AM |                              | <input checked="" type="checkbox"/> G                              | <input checked="" type="checkbox"/> Other  | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> NaOH             | <input checked="" type="checkbox"/> H <sub>3</sub> PO <sub>4</sub> | <input checked="" type="checkbox"/> NaOH             |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |
| Start: 4-24-19   
   
   
  |              |                |                              |  |  |  |  |  |  |        |           |           |              |              |        |        |           |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |  |  |  |  |  |                |              |                |  |                                       |  |  |   |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  | | | | | | | | | | | | | |
                               |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |                      
                   |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |              |                |  |                                       |   |  |  |  |  |                |



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 03, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 152B-01 E. coli MPN

Sample Number: AB23107

Sample Matrix: Non Potable Water

Collection Date/Time: 05/01/2019 07:54  
Receipt Date/Time: 05/01/2019 11:05

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23107-A	E. coli	✓	<1	MPN/100 mL		1	60281	5/1/19	14:03	BG/SAE
AB23107-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		6.15	hours		0.00	60280	5/1/19	14:03	BG/SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 03, 2019

Page 2 of 2

### QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60281

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/3/2019

Date

Result	Units	Qualifier	Lower	Acceptance Criteria	
				Target	Upper
Absent			---	Absent	---

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysts exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable

\\JMSLABWORKS\LABDATA\CRYSTAL\QA\_JHJ-ANALYTICAL\_02.RPT

The data in this report is current as of: 5/3/2019 1:58:34PM



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 06, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23136

Sample Matrix: Non Potable Water

Collection Date/Time: 05/02/2019 10:43

Receipt Date/Time: 05/02/2019 14:33

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23136-A	E. coli	✓	<1	MPN/100 mL		1	60332	5/2/19	15:08	SAE/GMM
AB23136-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.42	hours		0.00	60331	5/2/19	15:08	SAE/GMM
	NA									

A - Outside upper acceptance criteria

D - Outside lower acceptance criteria

T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded

J - Analyte detected outside quantitation limit

\* - See Case Narrative

--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 06, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60332

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower

Target  
Absent

Upper

0.0

0.5

5/6/2019

Date

Jeanette Hernandez  
Quality Assurance Specialist II

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 07, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 152B-01 E. coli MPN

Sample Number: AB23147

Sample Matrix: Non Potable Water

Collection Date/Time: 05/03/2019 09:02

Receipt Date/Time: 05/03/2019 12:10

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23147-A	E. coli	✓	<1	MPN/100 mL		1	60343	5/3/19	13:50	GMM/MSR
AB23147-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.80	hours		0.00	60342	5/3/19	13:50	GMM/MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 07, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLL\_QUANTITRAY-60343

QC Analyte Name  
Initial Blank for E. coli

*Rebecca S. Reeves*

Rebecca S. Reeves  
Senior Quality Control & Monitoring Supervisor

5/7/2019

Date

<u>Result</u> Absent	<u>Units</u>	<u>Qualifier</u>	<u>Acceptance Criteria</u>		
			<u>Lower</u>	<u>Target</u> Absent	<u>Upper</u>
			—		—

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 07, 2019

Page 1 of 2

**Customer:** SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

**Sample Location:** Martinez IV Effluent 1528-01 E. coli MPN  
**Sample Number:** AB23183  
**Sample Matrix:** Non Potable Water

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23183-A	E. coli	✓	<1	MPN/100 mL		1	60365	5/6/19	16:53	SAE
AB23183-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.38	hours		0.00	60364	5/6/19	16:53	SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- Not Applicable





SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 07, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60365

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower

Target

Upper

0.0

Absent

0.5

*Rebecca S. Reeves*

5/7/2019

Date

Rebecca S. Reeves  
Senior Quality Control & Monitoring Supervisor

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 13, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23218  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/07/2019 13:42  
Receipt Date/Time: 05/07/2019 14:40

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23218-A	E. coli	✓	<1	MPN/100 mL		1	60373	5/7/19	16:46	SAE
AB23218-A	E. Coli Holding Time - IDEXX Colilert		3.07	hours		0.00	60372	5/7/19	16:46	SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 13, 2019

Page 2 of 2

### QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60373

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/13/2019

Date

Result	Units	Qualifier	Lower	Acceptance Criteria	
				Target	Upper
Absent			—	Absent	—

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable

\\JMSLABWORKS\SLWDATA\CRYSTAL\QA\_JHJ-ANALYTICAL\_02.RPT

The data in this report is current as of: 5/13/2019 3:19:30PM



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

ANALYTICAL REPORT



May 13, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed.  
Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23243  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/08/2019 11:43  
Receipt Date/Time: 05/08/2019 14:05

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted.  
For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23243-A	E. coli	✓	<1	MPN/100 mL		1	60395	5/8/19	15:20	SAE/MSR
AB23243-A	E. Coli Holding Time - IDEXX Colilert		3.62	hours		0.00	60394	5/8/19	15:20	SAE/MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

# ANALYTICAL REPORT



May 13, 2019

Page 2 of 2

## QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60395

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower

Target

Upper

---

0.0

---

0.5

5/13/2019

Date

Jeanette Hernandez  
Quality Assurance Specialist II

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable

\\IMS\LABWORKS\ILWDATA\CRYSTALQA\_JHJ-ANALYTICAL\_02.RPT

The data in this report is current as of: 5/13/2019 3:20:04PM



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 15, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23257

Sample Matrix: Non Potable Water

Collection Date/Time: 05/09/2019 07:42

Receipt Date/Time: 05/09/2019 13:58

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23257-A	E. coli	✓	<1	MPN/100 mL		1	60427	5/9/19	15:38	SAE/MSR
AB23257-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		7.93	hours		0.00	60426	5/9/19	15:38	SAE/MSR
	NA									

A - Outside upper acceptance criteria

D - Outside lower acceptance criteria

T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded

J - Analyte detected outside quantitation limit

\* - See Case Narrative

-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 15, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60427

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower  
---  
0.0

Acceptance Criteria  
Target  
Absent  
---  
0.5

5/15/2019

Date

*Patricia M. Carvajal*

Patricia M. Carvajal  
Quality Assurance Supervisor

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 13, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23274

Sample Matrix: Non Potable Water

Collection Date/Time: 05/10/2019 09:22

Receipt Date/Time: 05/10/2019 14:10

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23274-A	E. coli	✓	<1	MPN/100 mL		1	60447	5/10/19	16:27	MSR
AB23274-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		7.08	hours		0.00	60446	5/10/19	16:27	MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable





SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



Page 2 of 2

May 13, 2019

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60447

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/13/2019

Date

Result	Units	Qualifier	Lower	Acceptance Criteria	
				Target	Upper
Absent					

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 16, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23305  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/13/2019 12:46  
Receipt Date/Time: 05/13/2019 14:34

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23305-A	E. coli	✓	<1	MPN/100 mL		1	60463	5/13/19	17:12	GM/SAE
AB23305-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		4.43	hours		0.00	60462	5/13/19	17:12	GM/SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

ANALYTICAL REPORT



May 16, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAYS-60463

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/16/2019

Date

<u>Result</u> Absent	<u>Units</u>	<u>Qualifier</u>	<u>Lower</u> ---	<u>Acceptance Criteria</u>	
				<u>Target</u> Absent	<u>Upper</u> ---

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 15, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23328

Sample Matrix: Non Potable Water

Collection Date/Time: 05/14/2019 11:20

Receipt Date/Time: 05/14/2019 14:25

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23328-A	E. coli	✓	<1	MPN/100 mL		1	60471	5/14/19	16:22	SAE
AB23328-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		5.03	hours		0.00	60470	5/14/19	16:22	SAE
	NA									

A - Outside upper acceptance criteria

D - Outside lower acceptance criteria

T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded

J - Analyte detected outside quantitation limit

\* - See Case Narrative

— - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 15, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60471

QC Analyte Name  
Initial Blank for E. coli

Result  
Absent

Units

Qualifier

Lower

Acceptance Criteria

Target

Upper

Absent

5/15/2019

Date

*Patricia M. Carvajal*

Patricia M. Carvajal  
Quality Assurance Supervisor

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 16, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23375

Sample Matrix: Non Potable Water

Collection Date/Time: 05/15/2019 09:37

Receipt Date/Time: 05/15/2019 14:05

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23375-A	E. coli	✓	<1	MPN/100 mL		1	60488	5/15/19	15:18	SAE
AB23375-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		5.68	hours		0.00	60487	5/15/19	15:18	SAE
	NA									

A - Outside upper acceptance criteria

D - Outside lower acceptance criteria

T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded

J - Analyte detected outside quantitation limit

\* - See Case Narrative

-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 16, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60488

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower  
--

Upper  
--

Acceptance Criteria  
Target  
Absent

0.5

5/16/2019

Date

Jeanette Hernandez  
Quality Assurance Specialist II

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 20, 2019

Page 1 of 2

**Customer:** SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

**Sample Location:** Martinez IV Effluent 1528-01 E. coli MPN  
**Sample Number:** AB23402  
**Sample Matrix:** Non Potable Water

**Collection Date/Time:** 05/16/2019 08:01  
**Receipt Date/Time:** 05/16/2019 14:10

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23402-A	E. coli	✓	<1	MPN/100 mL		1	60494	5/16/19	15:17	MSR
AB23402-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		7.27	hours		0.00	60493	5/16/19	15:17	MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable





SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

ANALYTICAL REPORT



May 20, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60494

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower

Target  
Absent

Upper

0.0

0.5

*Rebecca S. Reeves*

5/20/2019

Date

Rebecca S. Reeves

Senior Quality Control & Monitoring Supervisor

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



# Environmental Sciences Department Laboratory



## ANALYTICAL REPORT

600 E. Euclid  
San Antonio, TX 78212-4405

May 20, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23422  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/17/2019 09:54  
Receipt Date/Time: 05/17/2019 14:00

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23422-A	E. coli	✓	<1	MPN/100 mL		1	60508	5/17/19	15:48	MSR
AB23422-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		5.90	hours		0.00	60507	5/17/19	15:48	MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



May 20, 2019

Page 2 of 2

### QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITITRAY-60508

QC Analyte Name  
Initial Blank for E. coli

*Rebecca S. Reeves*

Rebecca S. Reeves  
Senior Quality Control & Monitoring Supervisor

5/20/2019

Date

Result	Units	Qualifier	Acceptance Criteria	
			Lower	Upper
Absent				

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

# ANALYTICAL REPORT



May 24, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23447  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/20/2019 10:43  
Receipt Date/Time: 05/20/2019 13:42

## CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

## ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23447-A	E. coli	✓	5	MPN/100 mL		1	60521	5/20/19	15:18	MD/SAE
AB23447-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.58	hours		0.00	60520	5/20/19	15:18	MD/SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

# ANALYTICAL REPORT



May 24, 2019

Page 2 of 2

## QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60521

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/24/2019

Date

Result	Units	Qualifier	Lower	Acceptance Criteria		Upper
				Target	Absent	
Absent						

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 24, 2019 Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23470  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/21/2019 08:31  
Receipt Date/Time: 05/21/2019 14:00

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a \*√\* complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23470-A	E. coli	√	<1	MPN/100 mL		1	60536	5/21/19	15:59	SAE/MD
AB23470-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		7.47	hours		0.00	60535	5/21/19	15:59	SAE/MD
	NA									

A - Outside upper acceptance criteria  
O - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 24, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60536

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Lower  
—

Target  
Absent

Upper  
—

0.5

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/24/2019

Date

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
— - Not Applicable



Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



600 E. Euclid  
San Antonio, TX 78212-4405

May 29, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed.  
Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23503

Sample Matrix: Non Potable Water

Collection Date/Time: 05/22/2019 12:25

Receipt Date/Time: 05/22/2019 14:55

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted.  
For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "\*" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23503-A	E. coli	✓	1	MPN/100 mL		1	60548	5/22/19	16:05	MSR
AB23503-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Coli-ert		3.67	hours		0.00	60547	5/22/19	16:05	MSR
	NA									

A - Outside upper acceptance criteria

D - Outside lower acceptance criteria

T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded

J - Analyte detected outside quantitation limit

\* - See Case Narrative

— - Not Applicable





SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

# ANALYTICAL REPORT



May 29, 2019

Page 2 of 2

## QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60548

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/29/2019

Date

	<u>Result</u> Absent	<u>Units</u>	<u>Qualifier</u>	<u>Acceptance Criteria</u>		
				<u>Lower</u>	<u>Target</u> Absent	<u>Upper</u>

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 30, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23513

Sample Matrix: Non Potable Water

Collection Date/Time: 05/23/2019 11:20

Receipt Date/Time: 05/23/2019 14:04

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23513-A	E. coli	✓	<1	MPN/100 mL		1	60558	5/23/19	16:09	MSR
AB23513-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.82	hours		0.00	60557	5/23/19	16:09	MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

# ANALYTICAL REPORT



May 30, 2019

Page 2 of 2

## QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60558

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Qualifier

Lower

Acceptance Criteria

Target

Upper

0.0

0.5

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/30/2019

Date

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



600 E. Euclid  
San Antonio, TX 78212-4405

June 03, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed.  
Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23539  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/24/2019 08:00  
Receipt Date/Time: 05/24/2019 13:50

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted.  
For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "\*" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23539-A	E. coli	✓	<1	MPN/100 mL		1	60568	5/24/19	15:50	MSR
AB23539-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Collert		7.83	hours		0.00	60567	5/24/19	15:50	MSR
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 03, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60568

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

6/3/2019

Date

<u>Result</u> Absent	<u>Units</u>	<u>Qualifier</u>	<u>Acceptance Criteria</u>		
			<u>Lower</u>	<u>Target</u> Absent	<u>Upper</u>

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



# Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



600 E. Euclid

San Antonio, TX 78212-4405

May 29, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23552

Sample Matrix: Non Potable Water

Collection Date/Time: 05/27/2019 09:10

Receipt Date/Time: 05/27/2019 10:24

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "\*" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23552-A	E. coli	✓	<1	MPN/100 mL		1	60576	5/27/19	14:49	DAZ/SAE
AB23552-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		5.65	hours		0.00	60575	5/27/19	14:49	DAZ/SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



May 29, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60576

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

5/29/2019

Date

Result Absent	Units	Qualifier	Acceptance Criteria		
			Lower	Target Absent	Upper

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



June 03, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Flores

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23605

Sample Matrix: Non Potable Water

Collection Date/Time: 05/28/2019 09:49

Receipt Date/Time: 05/28/2019 13:52

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "\*" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23605-A	E. coli	✓	1	MPN/100 mL		1	60587	5/28/19	15:37	SAE
AB23605-A	SM 9223B-2004									
	E. coli Holding Time - IDEXX Colilert		5.80	hours		0.00	60586	5/28/19	15:37	SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable





SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 03, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60587

QC Analyte Name  
Initial Blank for E. coli  
Log Range for E. coli

Result  
Absent  
0.0000

Units

Qualifier

Lower

Target  
Absent

Upper

0.0

0.5

6/3/2019

Date

Jeanette Hernandez  
Quality Assurance Specialist II

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid

San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory

## ANALYTICAL REPORT



June 03, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP

Daniel Fibres

1280 S. FM 1516

San Antonio, TX 78263

Fax #: 210-661-9324

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN

Sample Number: AB23623

Sample Matrix: Non Potable Water

Collection Date/Time: 05/29/2019 10:50

Receipt Date/Time: 05/29/2019 13:52

### CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

### ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23623-A	E. coli	✓	<1	MPN/100 mL		1	60600	5/29/19	15:18	MSR/SAE
AB23623-A	SM 9223B-2004									
	E. Coli Holding Time - IDEXX Colilert		4.47	hours		0.00	60599	5/29/19	15:18	MSR/SAE
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 03, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60600

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

6/3/2019

Date

Result	Units	Qualifier	Acceptance Criteria		
			Lower	Target	Upper
Absent				Absent	

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable

\\IMS\LABWORKS\SLWD\DATA\CRYSTAL\QA\_JHJ-ANALYTICAL\_02.RPT

The data in this report is current as of: 6/3/2019 4:20:11PM



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 03, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23675  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/30/2019 11:50  
Receipt Date/Time: 05/30/2019 15:09

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC		Analysis Date	Time	Analyst
						Batch #	Date			
AB23675-A E. coli	✓	<1	MPN/100 mL		1	60620	5/30/19	16:34		SAE/MSR
AB23675-A E. Coli Holding Time - IDEXX Colilert		4.73	hours		0.00	60619	5/30/19	16:34		SAE/MSR
NA										

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 03, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60620

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

6/3/2019

Date

Result	Units	Qualifier	Acceptance Criteria		
			Lower	Target	Upper
Absent					

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
--- - Not Applicable



Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



600 E. Euclid  
San Antonio, TX 78212-4405

June 05, 2019

Page 1 of 2

Customer: SARA - Martinez IV WWTP  
Daniel Flores  
1280 S. FM 1516  
San Antonio, TX 78263

Fax #: 210-661-9324

This analytical report is intended exclusively for the individual or entity to which it is addressed. Recipient is not authorized to print or copy this report, except in full without written approval of the laboratory. If you have received this report in error, please notify the San Antonio River Authority.

Sample Location: Martinez IV Effluent 1528-01 E. coli MPN  
Sample Number: AB23688  
Sample Matrix: Non Potable Water

Collection Date/Time: 05/31/2019 06:43  
Receipt Date/Time: 05/31/2019 11:15

CASE NARRATIVE

This report provides results related only to the referenced sample ID numbers. All samples were received in acceptable condition unless otherwise noted. For questions regarding this report, please contact Shannon Tollison, Laboratory Supervisor, at (210) 302-3275.

Analysis identified with a "✓" complies with NELAP requirements unless otherwise specified in the case narrative.

No sample and/or analysis comment(s)

ANALYTICAL RESULTS

Analysis	Analysis Method	NELAP	Result	Units	Qualifier	Reporting Limit	QC Batch #	Analysis Date	Time	Analyst
AB23688-A	E. coli	✓	<1	MPN/100 mL		1	60623	5/31/19	13:33	MSR
AB23688-A	SM 9223B-2004		6.83	hours		0.00	60622	5/31/19	13:33	MSR
	E. Coli Holding Time - IDEXX Colilert									
	NA									

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable



SAN ANTONIO  
RIVER AUTHORITY

600 E. Euclid  
San Antonio, TX 78212-4405

Environmental Sciences Department Laboratory  
ANALYTICAL REPORT



June 05, 2019

Page 2 of 2

QC ANALYTICAL RESULTS

QC Batch Name: E\_COLI\_QUANTITRAY-60623

QC Analyte Name  
Initial Blank for E. coli

*Jeanette Hernandez*

Jeanette Hernandez  
Quality Assurance Specialist II

6/5/2019

Date

<u>Result</u> Absent	<u>Units</u>	<u>Qualifier</u>	<u>Lower</u>	<u>Acceptance Criteria</u>		<u>Upper</u> --
				<u>Target</u> Absent		

A - Outside upper acceptance criteria  
D - Outside lower acceptance criteria  
T - Microbiological Controls were unacceptable

H - Hold Time for preparation or analysis exceeded  
J - Analyte detected outside quantitation limit

\* - See Case Narrative  
-- - Not Applicable

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 14

### Sludge Acceptance Agreement

Reference: Domestic Technical Report 1.0

### Section 9 A



## Attachment 14

Re: Permit Application

Applicant Name: San Antonio River Authority (CN600790620)

Type of Authorization: Permit Renewal

Site Name: Martinez IV WWTP; WQ0010749007; RN105285506

Upper Martinez Wastewater Treatment Plant (Permit No. WQ0010749-003) and Martinez II Wastewater Treatment Plant (Permit No. WQ0010749-004) agree to accept sewage sludge from the Martinez IV WWTP (Permit No. WQ0010749-007). All three Treatment Plants are owned and operated by the San Antonio River Authority.

If you have any questions or need additional information, please call me at (210) 302-4200.

Sincerely,



Amy Middleton  
Utilities Manager  
San Antonio River Authority

8/15/19

Date

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 15

### Agreement with City of Schertz

Reference: Domestic Technical Report 1.1

### Section 1 B1

STATE OF TEXAS	§	INTERLOCAL AGREEMENT BETWEEN SAN
	§	ANTONIO RIVER AUTHORITY AND THE
COUNTY OF BEXAR	§	CITY OF SCHERTZ, TEXAS FOR SEWAGE
		TRANSPORTATION, TREATMENT AND
		DISPOSAL

---

This Interlocal Agreement (hereinafter referred to as "Agreement") is entered into by and between the San Antonio River Authority, a conservation and reclamation district (hereinafter referred to as "River Authority"), and the City of Schertz, Texas, a Texas municipal corporation (hereinafter referred to as "City"), each of which may also be referred to herein individually as a "Party" or collectively as the "Parties".

WHEREAS River Authority owns and operates the San Antonio River Authority Wastewater Treatment System (the "System"), which provides sewage transportation, treatment and disposal; and

WHEREAS, City is located within River Authority's certificate of convenience and necessity and owns and operates its sewage collection system; and

WHEREAS City desires to contract with River Authority to provide sewage transportation, treatment and disposal for City; and

WHEREAS the Parties in the interest of public convenience and pursuant to the provisions of Chapter 791, as amended, Texas Government Code ("Chapter 791"), have determined that the public interest would best be served by River Authority providing sewage transportation, treatment and disposal for City to promote efficiency and effectiveness and to protect the environment, public health, safety and welfare;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the undersigned Parties agree to the terms and conditions outlined below.

#### **I. AUTHORITY**

This Agreement is entered into by the Parties pursuant to the authority granted each of them by the applicable general and special laws of the State of Texas, and in compliance with the provisions of Chapter 791. This Agreement is intended to further the purpose of Chapter 791, which is to increase the efficiency and effectiveness of local governments.

#### **II. CITY'S OBLIGATIONS**

City agrees that it shall (i) timely pay to River Authority the full amount it is required to pay under the provisions of this Agreement, (ii) plan, construct, maintain and finance the local sewage facilities owned, operated and maintained by City, (iii) set retail rates to its individual customers for sewage service adequate to meet its obligations, including those hereunder, (iv) bill and collect for its local sewer services, (v) generate and distribute any and all communications to City customers related to City services (vi) set and enforce construction standards (plumbing codes and building ordinances) for its system based on appropriate regional standards, and (vii) if applicable, establish an industrial cost recovery charge consistent with guidelines of the Environmental Protection Agency. City agrees that it will cooperate with and assist the River Authority in the performance of the obligations assigned to the River Authority in this Agreement.

### **III. RIVER AUTHORITY'S OBLIGATIONS**

River Authority agrees that it shall (i) transport, treat and dispose of sewage of the City, in compliance with its currently permitted operations; currently all flow from this service area is treated at the Martinez III Wastewater Treatment Plant which is permitted for 150,000 gallons per day; the current permitted capacity of the Graytown Wastewater Treatment Plant, which has not yet been constructed, is 2,000,000 gallons per day; the projected build out of the Graytown Wastewater Treatment Plant for the entire watershed is estimated to be permitted for up to 18,000,000 gallons per day, (ii) cooperate with and assist City in the performance of the obligations assigned to the City under this Agreement, and (iii) operate the System efficiently and prudently in accordance with the accepted standards of its governmental function.

### **IV. PROCEDURES TO ENSURE QUALITY**

Sewage will be accepted into the System at points of entry mutually agreed upon in writing by City and River Authority. The current points of entry are shown in the attached Exhibit "A".

City agrees to limit its discharges into the System to those that are defined as admissible discharges under River Authority's industrial waste control ordinance No. O-805 passed and approved May 15, 1985 and to curtail the discharge of any wastes that have the characteristics of prohibited discharges under said ordinance, and all future amendments to said ordinance. A copy of said ordinance is attached as Exhibit "B".

City shall have full responsibility in connection with all wastes handled by its local sewage facilities. River Authority shall have full responsibility in connection with all wastes

handled by the System, including City sewage accepted by the System at mutually agreed upon entry points.

#### **V. CHARGES**

City shall make payments to River Authority for (i) sewage transportation, treatment and disposal, (ii) fees included in the River Authority's industrial waste control ordinance, including extra strength sewage treatment, (iii) industrial cost recovery, (iv) connection fees and (v) for any other expenditures which are the responsibility of City under this Agreement. The initial wholesale charges to City for sewage transportation, treatment and disposal; the charges for extra strength wastes; the industrial cost recovery charges; and the connection fees to be charged to City shall be based on Wholesale Customer Charge Schedule as shown in the attached Exhibit "C".

River Authority will adjust its charges to the City annually, on July 1 of each calendar year. On or before May 1 of each year, River Authority will give written notice to City of the charges for the following year. River Authority shall not be responsible to City or its customers for any issues related to customer billings.

Within thirty days of the close of each calendar month, a statement of ~~account~~ connections and the payments called for in this Agreement shall be forwarded to River Authority by City. By June 1 of each calendar year, City shall provide a listing of connections served by address to River Authority. River Authority shall have the right to verify and audit reported connections. Delinquent payments to River Authority shall incur a penalty based on State of Texas Prompt Payment Act.

#### **VI. TERM**

The term of this Agreement shall be for 20 years from March 24, 2015.

The obligation of City to promptly pay all prescribed charges shall commence upon the execution of this Agreement and shall continue for the balance of the term remaining on this Agreement provided that the River Authority performs in accordance with the terms of this Agreement. At the end of such term, the Parties agree that each Party shall have the right to an extension of the term of this Agreement beyond such initial period for four additional five year terms under identical terms and conditions, provided each Party agrees.

#### **VII. TITLE TO WATER AND SEWAGE**

Title to all water and sewage put into the System under this Agreement shall pass to the River Authority at the points of entry.

#### **VIII. EASEMENTS**

City agrees to the extent physically feasible, reasonably practicable, as determined by City, and legally authorized that the River Authority may use without compensation the easements, rights-of-way or property held by City, and described on the attached Exhibit D, so that the River Authority's facilities and required equipment may be appropriately provided.

#### **IX. FORCE MAJEURE**

If for any reason of "force majeure" either of the Parties hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement, other than the obligation of the City to make the payments required under the terms of Article IV hereof,

then if such Party shall give notice and full particulars of such reasons in writing to the other Party within a reasonable time after the occurrence of the event, or cause relied on, the obligation of the Party giving such notice, so far as it is affected by such "force majeure" shall be suspended during the continuance of the inability then claimed, but for no longer period; and such Party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term "force majeure" as employed herein shall mean acts of god, strikes, lock-outs or other industrial disturbances, acts of public enemy, orders or actions of any kind of the Government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightening, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraints of Government and people, civil disturbances, explosions, breakage or accident to dams, machinery, pipelines, or canals or structures, or on account of any other cause not reasonably within the control of the Party claiming such inability. It is understood and agreed that the settlement of strikes and lock-outs shall be entirely within the discretion of the Party having the difficulty, and that the above requirement that any "force majeure" shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lock-outs by acceding to the demands of the opposing parties when such settlement is unfavorable to it in the judgment of the Party having difficulty. No damages shall be recoverable from the River Authority by reason of the causes above mentioned.

#### **X. AUDIT**

Each Party reserves the right to conduct, or cause to be conducted an audit of all funds received or dispersed under this Agreement at any and all times deemed



necessary by that Party. Each Party's staff, a certified public accounting firm, or other auditors as designated by that Party, may perform such audit(s). Each Party reserves the right to determine the scope of every audit. Each Party agrees to make available to the other Party all books, records, documents and reports with respect to matters covered by this Agreement.

#### **XI. INSURANCE**

Each Party shall name the other Party as an additional insured under its current respective insurance policy or intergovernmental risk management fund coverage, maintaining the additional insured requirement throughout the term of this Agreement, and furnish certificates of coverage to the other Party upon request, including, a certificate of insurance coverage indicating the commercial general liability policy data and the additional insured endorsement or verification of intergovernmental risk management fund coverage.

#### **XII. ASSIGNMENT**

No Party may assign or transfer its interest in this Agreement or any portion thereof without the written consent of the governing body of the other Party. Any attempt to transfer, pledge or otherwise assign shall be void *ab initio* and shall confer no rights upon any third person or party.

#### **XIII. NOTICE**

For purposes of this Agreement, all notices among the Parties shall be deemed sufficient if in writing and mailed certified mail, return receipt requested, postage prepaid, to the addresses set forth below:

**CITY:**

City Manager  
City of Schertz  
1400 Schertz Parkway  
Schertz, TX 78154

**RIVER AUTHORITY:**

General Manager  
San Antonio River Authority  
P. O. Box 839980  
San Antonio, Texas 78283

Notices of changes of address must be made in writing delivered to the last known address of each other Party within five (5) business days of the change.

**XIV. GOVERNING LAW AND VENUE**

The Parties agree that this Agreement shall be governed by and construed in accordance with the laws of the State of Texas. Any action or proceeding brought to enforce the terms of this Agreement or adjudicate any dispute arising out of this Agreement shall be brought in a court of competent jurisdiction in Bexar County, Texas.

**XV. GENDER AND TENSE**

Words of either gender used in this Agreement shall be held and construed to include the other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires.

**XVI. AUTHORITY**

The signers of this Agreement represent that they have full authority to execute this Agreement on behalf of City and River Authority, respectively, and that the respective governing bodies of City and River Authority, have authorized the execution of this Agreement.

## **XVII. INDEPENDENT CONTRACTOR**

It is expressly agreed and understood that each Party is and shall be deemed to be an independent contractor, responsible for its respective acts or omissions and that the other Party shall be in no way responsible therefore, and that no Party hereto has authority to bind the other Party nor to hold out to third parties that it has the authority to bind the other Party. Nothing herein contained shall be deemed or construed to create the relationship of employer-employee, principal-agent, an association, joint venture, partners, or partnership or impose a partnership duty, obligation or liability among the Parties. No third party beneficiaries are created by this Agreement. This Agreement is not intended to and shall not create any rights in or confer any benefits upon any other person other than the Parties.

## **XVIII. SEVERABILITY**

If any clause or provision of this Agreement is held invalid, illegal or unenforceable under present or future federal, state or local laws, then and in that event it is the intention of the Parties that such invalidity, illegality or unenforceability shall not affect any other clause or provision hereof and that the remainder of this Agreement shall be construed as if such invalid, illegal or unenforceable clause or provision was never contained herein; it is also the intention of the Parties hereto that in lieu of each clause or provision of this Agreement that is invalid, illegal or unenforceable, thereby added as a part of this Agreement a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provisions as may be possible, to be legal, valid and enforceable.

#### **XIX. DISPUTE RESOLUTION**

If a dispute arises with respect to this Agreement, the Parties shall first negotiate in good faith to resolve the dispute with an appeal to higher internal management, and failing resolution by such means, shall then submit the dispute to a mutually agreeable, non-binding dispute resolution process, before resorting to litigation.

#### **XX. AMENDMENTS AND MODIFICATIONS**

This Agreement shall be binding upon the Parties and their respective successors and legal representatives and shall inure solely to the benefit of the Parties and their respective successors and legal representatives. Furthermore, no alteration, amendment, or modification of any provision of this Agreement shall be effective unless (1) prior written consent of such alteration, amendment, or modification shall have been obtained from the Parties hereto, and (2) such alteration, amendment, or modification is in writing and signed by the Parties hereto. The Parties may amend this Agreement upon compliance with applicable law.

#### **XXI. WAIVER**

The failure on the part of either Party herein at any time to require the performance by the other Party, of any way portion of this Agreement, shall not be deemed a waiver of, or in any way affect that Party's rights to enforce such provision, or any other provision. Any waiver by any Party herein of any provision hereof, shall not be taken or held to be a waiver of any other provision hereof, or any other breach hereof.

#### **XXII. NO THIRD PARTY BENEFICIARY**

The Parties are entering into this Agreement solely for the benefit of their own entities and agree that nothing herein shall be construed to confer any right, privilege or benefit on any person or entity other than the Parties hereto.

#### **XXIII. INCORPORATION OF PROVISIONS REQUIRED BY LAW**

Each provision and clause required by law to be inserted into this Agreement shall be deemed to be included herein, and the Agreement shall be read and enforced as though each were included herein. If through mistake, or otherwise, any such provision is not inserted, or is not correctly inserted, the Agreement shall be mutually amended to make such proper insertion, on application by either Party.

#### **XXIV. CAPTIONS**

The section headings appearing in this Agreement are for convenience of reference only and are not intended, to any extent and for any purpose, to limit or define the text of any section or any subsection hereof.

#### **XXV. INCORPORATION OF RECITALS**

The recitals contained in the preamble hereof are hereby found to be true, and such recitals are hereby made a part of this Agreement for all purposes and are adopted as a part of the judgment and findings of the governing boards of the Parties.

#### **XXVI. INCONSISTENT PROVISIONS**

All ordinances and resolutions, or parts thereof, which are in conflict or inconsistent with any provision of this Agreement are hereby repealed to the extent of

such conflict, and the provisions of this Agreement shall be and remain controlling as to the matters provided herein.

#### **XXVII. COMPLIANCE WITH TEXAS OPEN MEETINGS ACT**

It is officially found, determined, and declared that the meeting of the River Authority at which this Agreement is adopted was open to the public and public notice of the time, place, and subject matter of the public business to be considered at such meeting, including this Agreement, was given, all as required by Chapter 551, as amended, Texas Government Code.


#### **XXVIII. ENTIRE AGREEMENT**

This Agreement contains the entire agreement between the parties pertaining to the subject matter hereof and fully supersedes all prior agreements and understandings between the parties pertaining to such subject matter.

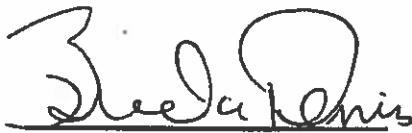
EXECUTED IN DUPLICATE ORIGINALS, EACH OF WHICH SHALL  
HAVE THE FULL FORCE AND EFFECT OF AN ORIGINAL, the 24 day of  
March, 2015.

CITY

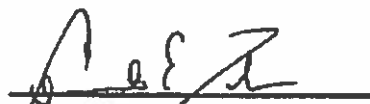
CITY OF SCHERTZ  
a Texas Municipal  
Corporation

  
\_\_\_\_\_  
Michael Carpenter  
Mayor

ATTEST:

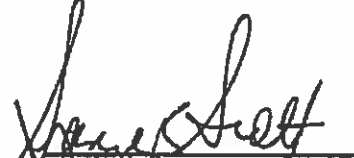
  
\_\_\_\_\_  
Brenda Dennis  
City Secretary

APPROVED AS TO LEGAL  
FORM:


  
\_\_\_\_\_  
City Attorney

RIVER AUTHORITY

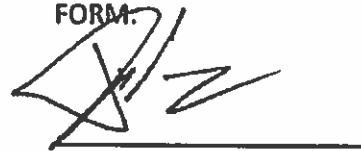
SAN ANTONIO RIVER  
AUTHORITY

  
\_\_\_\_\_  
Suzanne B. Scott  
General Manager

ATTEST:

  
\_\_\_\_\_  
Stephen T. Graham  
Assistant Secretary

APPROVED AS TO LEGAL  
FORM:

  
\_\_\_\_\_  
David W. Ross  
General Counsel

# GRAYTOWN WASTEWATER COLLECTION SYSTEM MAP

OR Site Sewer Lines

Existing WWTP Location

Lift Station

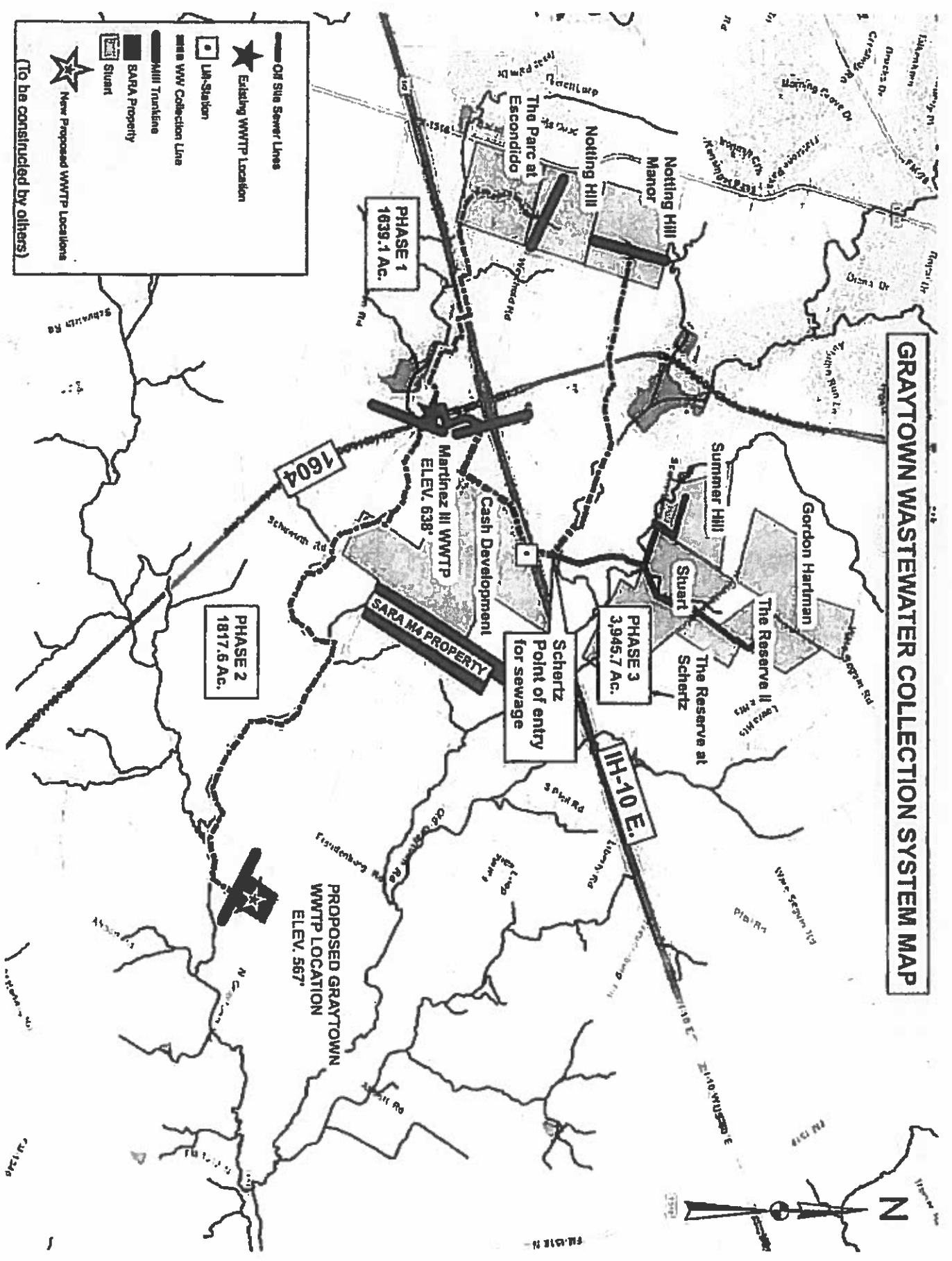
Sewer WW Collection Line

Mill Trunkline

SARA Property

Stuart

New Proposed WWTP Locations  
 (To be constructed by others)



8x11 Map



ORDINANCE NO. O-805

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY REGULATING THE USE OF BOTH PUBLIC AND PRIVATE SEWERS, DRAINS AND RELATED APPURTENANCES THAT ULTIMATELY DISCHARGE INDUSTRIAL WASTES INTO THE SAN ANTONIO RIVER AUTHORITY MARTINEZ-SALATRILLO CREEKS SEWAGE TRANSPORTATION AND TREATMENT SYSTEM, PROMULGATING STANDARD PROCEDURES AND REGULATIONS FOR COMPLIANCE HEREWITH, ESTABLISHING PENALTIES FOR NONCOMPLIANCE HEREWITH, AND REPEALING ORDINANCE NO. O-553, PASSED AND APPROVED 17 FEBRUARY, 1971.

Preamble

WHEREAS, the Federal government has enacted the Federal Water Pollution Control Act of 1972 (PL-92-500), as amended by the Clean Water Act of 1977 (PL 95-217) containing Industrial Wastewater Pretreatment Regulations at 40 CFR, Part 403; and

WHEREAS, the SAN ANTONIO RIVER AUTHORITY (hereinafter referred to as "SARA") operates the Martinez-Salatrillo Creeks Sewage Transportation and Treatment System, and is responsible for meeting effluent limitations established by state and federal permits for the operation of all wastewater treatment plants which are part of said system; and

WHEREAS, in connection with meeting such effluent limitations it is essential that SARA enforce compliance with the above cited statutes in regulating the use of the Martinez-Salatrillo Creeks Sewage Transportation and Treatment System.

NOW, THEREFORE BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY:

SECTION 1. Repeal of Existing Ordinance.

SAN ANTONIO RIVER AUTHORITY Ordinance No. O-553 passed and approved 17 February 1971 is hereby repealed and superseded effective June 1, 1985.

## SECTION 2. General Provisions.

This Ordinance may be cited as the SAN ANTONIO RIVER AUTHORITY Industrial Waste Ordinance and becomes effective on June 1, 1985. It sets forth uniform requirements to be met by all industrial waste dischargers utilizing the SAN ANTONIO RIVER AUTHORITY Martinez-Salatrillo Sewerage System. This Ordinance is written to enable the said system to comply with and enforce all applicable State and Federal laws pertaining to water quality control.

The objectives of this Ordinance are:

(a) To prevent the introduction of pollutants into the Martinez-Salatrillo Sewerage System in such quantities or qualities that would interfere with the operation of the said System or contaminate the resulting sludge;

(b) To prevent the introduction of pollutants into the Martinez-Salatrillo Sewerage System that may typically pass through the said System either unaffected by the treatment process, or inadequately treated by that process, and resulting in an insufficient quality of effluent discharging into the receiving waters or atmosphere;

(c) To improve the opportunity for reclaiming and recycling wastewater and sludge generated by the Martinez-Salatrillo Sewerage System.

(d) To ensure that there is an equitable distribution of the operation, maintenance and capital related costs of the said System across user classes;

(e) To create a permit system to regulate non-domestic users of the said System;

(f) To enforce the provisions of this Ordinance by requiring self-monitoring and self-reporting from industrial users to supplement periodic investigations made by SARA inspection personnel;

(g) To provide penalties for violations of the regulations established herein.

) )

This Ordinance shall be given full force and effect inside the SARA Martinez-Salatrillo Sewerage System service areas. Additionally, this Ordinance shall apply to those entities being served by the said System. By operation of law, permit conditions, contract, or intermunicipal agreement, industrial wastewater dischargers within individual entities, unincorporated areas, and incorporated areas, are obligated to abide by the provisions of this Ordinance and/or equal or more stringent, non-SARA, entity-enacted, ordinances that govern the discharge of industrial wastewater into sewage collection systems that ultimately connect to SARA's Martinez-Salatrillo Sewerage System. Industrial wastewater discharges within entities, unincorporated areas, and incorporated areas inside the SARA Martinez-Salatrillo Sewerage System service area are obligated to financially support the said System by paying all applicable sewer user charges and fees to the appropriate collection agent for costs associated with the transportation, treatment, operation, maintenance, monitoring, administration and enforcement services provided. Except as otherwise provided for herein, the General Manager of SARA shall be responsible for the implementation, administration and enforcement of the provision of this Ordinance.

### SECTION 3. Definitions.

3.1 Act or 'the Act'. The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et. seq.

3.2 Approval Authority. The Administrator of the EPA or his designated representative.

3.3 Authorized Representative of Industrial User. An authorized representative of an industrial user may be: (1) an executive officer of at least the level of vice president if the industrial user is a corporation; (2) a general partner or proprietor if the industrial user is a partnership or proprietorship, respectively; (3) a duly authorized representative of the individuals designated above. The designated representative of an industrial user shall be named only by official title in the Industrial Wastewater Discharge Permit.

3.4 Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure, five (5) days at 20 degrees centigrade expressed in terms of weight per unit volume (milligrams per liter, mg/l).

3.5 Board of Directors. The twelve elected directors of the San Antonio River Authority, any seven of which, when meeting under the provisions of the Texas Open Meeting Law (Tex. Rev. Civ. Stat. Ann. art. 6252-17), constitute a quorum and may act for SARA.

3.6 Building Sewer. A sewer conveying wastewater from the premises of a User to the POTW.

3.7 Categorical Standards. National Categorical Pretreatment Standards or Pretreatment Standard as set forth in any regulation containing pollutant discharge limits promulgated by the EPA in accordance with the Section 307 (b) and (c) of the Act (33 U.S.C. 1347) which applies to a specific category of Industrial Users.

3.8 "C.O.D." (Chemical Oxygen Demand) means measure of the oxygen consuming capacity of inorganic and organic matter present in the water or wastewater expressed in mg/l as the amount of oxygen consumed from a chemical oxidant in a specific test, but not differentiating between stable and unstable organic matter and thus not necessarily correlating with biochemical oxygen demand;

3.9 Cooling Water. The water discharge from any use thereof to which the only potential pollutant added is heat.

3.10 Compatible Pollutant. Biochemical oxygen demand, suspended solids, PH and fecal coliform bacteria; plus any additional pollutants identified in the publicly-owned treatment work's NPDES permit, where the publicly-owned treatment work (POTW) is designed to treat such pollutants and, in fact, does treat such pollutants to the degree required by the POTW's NPDES permit.

3.11 Control Authority. The term "control authority" shall refer to the "Approval Authority", defined hereinabove; or the Systems Manager if SARA has an approved Pretreatment Program under the provisions of 40 CFR, 403.11.

3.12 Control Manhole. A manhole giving access to a building sewer at some point before the building sewer discharge mixes with other discharges in the public sewer.

3.13 Control Point. Point of access to a course of discharge before the discharge mixes with other discharges in the public sewer.

3.14 Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the State of Texas.

3.15 Environmental Protection Agency, or EPA. The U.S. Environmental Protection Agency, or where appropriate the term may also be used as a designation for the Administrator or other duly authorized official of said agency.

3.16 Garbage. Animal and vegetable wastes and residue from preparation, cooking and dispensing of food; and from the handling, processing, storage and sale of food products and produce.

3.17 Grab Sample. A sample which is taken from a wastewater flow on a one-time basis without regard to the volume of flow and without consideration of the time at which the sample is taken.

3.18 Holding Tank Waste. Any wastes from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, and vacuum pump tank trucks, and other liquid waste hauling mechanisms.

3.19 Incompatible Pollutant. All pollutants other than compatible pollutants as defined in subparagraph 3.8 of this Section.

3.20 Indirect Discharge. The discharge or the introduction of non-domestic pollutants from any source regulated under Section 307 (b) or (c) of the Act (33 U.S.C. 1317) into the POTW (including holding tank waste discharged into the Wastewater System).

3.21 Industrial User. A non-residential source of Indirect Discharge as defined above which does not constitute a 'discharge of pollutants' to a receiving stream under regulations issued pursuant to Section 402, of the Act, (33 U.S.C. 1342).

3.22 Industrial Wastewater. The liquid and waterborne pollutants resulting from processes or operations employed in business, commerce, or industry as defined in the "Standard Industrial Classification Manual, 1972" Office of Management and Budget of the Federal government, as amended and supplemented from time to time. Includes the mixtures of any industrial wastewater pollutants with water or domestic sewage as distinct from normal domestic wastewater.

3.23 Interference. The inhibition or disruption of the POTW transportation and/or treatment processes or operations or that which contributes to a violation of any requirement of the POTW's NPDES Permit. The term includes acts or failures to act that prevent sewage sludge use or disposal by the POTW in accordance with Section 405 of the Act (33 U.S.C. 1345) or any criteria, guidelines or regulations developed pursuant to the Solid Waste Disposal Act (SWDA), the Clean Air Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, or more stringent state criteria (including those contained in any State sludge management plan prepared pursuant to Title IV of SWDA) applicable to the methods of disposal or use employed by the POTW.

3.24 Manager. The General Manager of SARA or his duly authorized representative. The General Manager reports to the Board of Directors of SARA.

3.25 National Prohibitive Discharge Standard or Prohibitive Discharge Standard. Any regulation developed under the authority of 307 (b) of the Act 40 CFR, Section 403.5.

3.26 Natural Outlet. Any outlet into a watercourse, ditch, lake, or other body of surface water or groundwater.

3.27 New Source. Any source, the construction of which is commenced after the publication (in the Federal Register) of proposed standards for that industry, as prescribed in Section 307 (c) of the Act (33 U.S.C.1317), if such regulation is enacted within 120 days after publication in the Federal Register. Where the standard is promulgated later than 120 days after publication in the Federal Register, a new source means any source, the construction of which is commenced after the date of promulgation of the standard.

3.28 National Pollution Discharge Elimination System or NPDES Permit. A permit issued pursuant to Section 402 or the Act (33 U.S.C. 1342).

3.29 Normal Domestic Wastewater. The water-borne wastes normally discharging from the sanitary conveniences of dwellings, including apartment houses, hotels, office buildings, factories and institutions, which are free from storm water and industrial waste. The BOD is not greater than 200 mg/l and suspended solids level is not greater than 200 mg/l.

3.30 Person. Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other

legal entity, or their legal representatives, agents or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.

3.31 pH. The logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in moles per liter of solution.

3.32 Pollution. The human alteration of the chemical, physical, biological, or radiological characteristics of water below certain minimum desirable quality standards.

3.33 Pollutant. Any dredge spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

3.34 Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes, or process changes by other means, except as prohibited by 40 CFR Part 403, Section 403.6 (d).

3.35 Pretreatment Requirements. Any locally adopted substantive or procedural requirement related to industrial wastewater pretreatment that may supplement National Pretreatment Standard requirements imposed upon an industrial user.

3.36 Publicly Owned Treatment Works (POTW). A treatment works as defined by Section 212 of the Act (33 U.S.C. 1292). This definition includes any sewers that convey wastewater to the POTW treatment plant from indirect discharge points. This definition does not include pipes, sewers, sampling points located exclusively on private property, or other conveyances that are physically located anterior to the indirect discharge point.

3.37 POTW Treatment Plant. That portion of the POTW designed to provide wastewater treatment rather than wastewater transportation.

3.38 San Antonio River Authority. A political subdivision of the State of Texas organized by the Texas Legislature under authority of Article XVI Sec. 59 of the Texas Constitution, and codified as Article 8280-119, Revised Civil Statutes of Texas, hereinafter called "SARA".

3.39 Shall. Shall is mandatory: May is permissive.

3.40 Sluq. Any discharge of water, wastewater or industrial waste which in concentration of any given constituent or in quantity of flow, exceeds for any period of duration longer than fifteen (15) minutes more than five (5) times the average twenty-four hour concentration or flows during normal operation.

3.41 State. State of Texas.

3.42 Standard Industrial Classification (SIC). A classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972.

3.43 Standard Methods. Shall mean the examination and analytical procedures set forth in the latest edition at the time of analysis of "Standard Methods for the Examination of Water and Wastewater" as prepared by the American Water Works Association. "Standard Methods" shall also mean any approved analytical procedures published by the U.S. EPA in 40 CFR Part 36.

3.44 Storm Water. Any excess flow of water within the Wastewater System resulting from surface runoff from natural forms of precipitation including infiltration and inflow.

3.45 Suspended Solids. The total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or other liquids, which is removable by a laboratory filtration device in accordance with procedures set forth in "Standard Methods for the Examination of Water and Wastewater" expressed in terms of weight per unit volume (mg/l).

3.46 Systems Manager. The person designated by the General Manager of SARA to supervise the operation and maintenance of the publicly owned treatment works and who is charged with certain duties and responsibilities by this Ordinance. Although SARA will normally be represented by the Systems Manager in contacts with users of the POTW, other qualified personnel can be designated as the Systems Manager's duly authorized representative when appropriate.



3.47 Toxic Pollutant. Any pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under the provision of Section 307 (a) of the Act or other Acts.

3.48 Trap. A device designed to skim, settle, or otherwise remove grease, oil, sand, flammable wastes or other harmful substances.

3.49 User. Any person who contributes, causes or permits the contribution of wastewater into SARA's POTW.

3.50 Wastewater. The liquid and water-carried industrial or domestic wastes from dwellings, commercial buildings, industrial facilities and institutions, whether treated or untreated, which is indirectly discharged into, or permitted to enter, the POTW, together with any groundwater, surface water, and storm water that may be present.

3.51 Watercourse. A natural or man-made channel in which a flow of water occurs, either continuously or intermittently.

3.52 State Waters.

(a) The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, lake, and of every bay of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the State is the property of the State.

(b) Water which is imported from any source outside the boundaries of the State for use in the State and which is transported through the beds and banks of any navigable stream within the State or by utilizing any facilities owned or operated by the State is the property of the State.

3.53 Industrial Wastewater Discharge Permit. As set forth in Section 6.2 of this Ordinance.

3.54 Abbreviations. The following abbreviations shall have the designated meanings:

BOD - Biochemical oxygen demand (five day).  
CFR - Code of Federal Regulations.  
COD - Chemical oxygen demand.

EPA - Environmental Protection Agency.  
l - Liter  
LEL - Lower Explosive Limit.  
mg - Milligrams.  
mg/l - Milligrams per liter (weight to volume).  
NPDES - National Pollutant Discharge Elimination System.  
POTW - Publicly Owned Treatment Works.  
PL - Public Law.  
SIC - Standard Industrial Classification.  
SWDA - Solid Waste Disposal Act, 42 U.S.C. 6901, et. seq.  
USC - United States Code.  
TDWR - Texas Department of Water Resources.  
TSS - Total Suspended Solids.  
SARA - San Antonio River Authority

#### SECTION 4. Regulations.

4.1 General Discharge Prohibitions. No user shall directly or indirectly contribute or cause to be contribute, any pollutant or wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all such users of a POTW whether or not the user is subject to National Categorical Pretreatment Standards or any other National, State, or local Pretreatment Standards or Requirements. A user shall not contribute the following substances to any POTW:

(a) Any liquids, solids or gases, which by reason of their nature or quantity are, or may be sufficient, either alone or by interaction with other substances, to cause fire or explosion or be injurious in any other way to the POTW or to the operation of the POTW. At no time shall two successive readings on an explosion hazard meter, at the point of discharge into the system, or at any other point in the system, be more than five percent (5%) nor any single reading be over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. Prohibited materials include but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which SARA, the State or EPA has notified the user is a fire hazard to the system.

(b) Solid or viscous substances in such quantities and/or qualities which may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater treatment facilities such as, but not limited to: grease, garbage with particles greater than one-half (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud or glass grinding or polishing wastes.

(c) Any wastewater having a BOD of greater than 200 MG/L, or a TSS level of greater than 200 MG/L. (Note: Under certain conditions SARA may accept wastewater of a greater strength, subject to payment of an overstrength surcharge. See Section 5.2, Schedule of Fees.)

(d) Any wastewater having a pH less than 6.0 or greater than 8.5, or wastewater having any other corrosive property capable of causing inordinate damage or hazard to structures, equipment, and/or personnel of the POTW.

(e) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving stream at the POTW, or to exceed the limitation set forth in a Categorical Pretreatment Standard. A toxic pollutant shall include but not be limited to any pollutant identified pursuant to Section 307 (a) of the Act.

(f) Any noxious or malodorous liquids, gases, or solids which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to physically prevent reasonable safe and/or tolerable human and/or mechanical entry into the sewers for inspection, maintenance and repair purposes.

(g) Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, or scums, to be unsuitable for normal landfill disposal, land application reclamation or reuse, or to interfere with the reclamation process where the POTW is pursuing a reuse and reclamation program. In no case, shall a substance discharged to the POTW cause the POTW to be out of compliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Act; any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, or State criteria applicable to sludge management and/ or disposal methods being used.

(h) Any substance which will cause the POTW to violate its NPDES and/or State Wastewater Permit or the receiving water effluent quality standards.

(i) Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes, vegetable tanning solutions, and whole blood.

(j) Any wastewater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW treatment plant which exceeds 40 degrees centigrade (104 degrees fahrenheit). Wastewater entering the collection system cannot exceed 65.5 degrees centigrade (150 degrees fahrenheit) unless the quantity of heated discharge is of such volume that the total wastewater temperature at the nearest downstream manhole does not exceed 40 degrees centigrade (104 degrees fahrenheit).

(k) Any pollutants, including oxygen demanding pollutants (BOD, etc.) released at a flow and/or pollutant concentration which a user knows or should have reason to know will cause interference to the POTW. In no case shall a slug load have a flow rate or, contain concentration or quantities of pollutants, that exceed for any time period longer than fifteen (15) minutes, more than five (5) times the average daily concentration, quantities, or flow during normal operation.

(1) Any wastewater containing any radioactive wastes or isotopes of such half life or concentration as may exceed limits as permitted by the most current Federal or State regulations or as established by the Manager in compliance with applicable State or Federal regulations.

(m) Any wastewater which creates a public nuisance. When the Manager determines that a user(s) is indirectly discharging to the POTW any of the above enumerated substances in such quantities or concentrations so as to interfere with the operation or performance of the POTW, he shall: 1) advise the user(s) of the impact of the indirect discharge on the POTW; and 2) develop effluent limitation(s) for such user to correct the interference with the POTW.

4.2 Federal Categorical Pretreatment Standards. After the promulgation of the Federal Categorical Pretreatment Standard for a particular industrial subcategory, and upon expiration of any compliance grace period, the Federal Standard, if more stringent than limitations imposed under this Ordinance for sources in that subcategory, shall supersede and replace the limitations imposed under this Ordinance for that particular industrial subcategory. Federal Categorical Pretreatment Standards that are more stringent than limitations imposed under this Ordinance for sources in a particular industrial subcategory, and are already in existence at the time this Ordinance becomes effective, shall also supersede and replace the limitations imposed under this Ordinance as they apply to the particular industrial subcategory so regulated. The Manager shall notify all affected users of the modified applicable reporting requirements under 40 CFR, Part 403, Section 403.12.

4.3 Modification of Federal Categorical Pretreatment Standards. Where SARA's wastewater treatment system achieves consistent removal of pollutants limited by Federal Pretreatment Standards, SARA may apply to the Approval Authority for modification of specific limits in the Federal Pretreatment Standards. "Consistent removal" shall mean reduction in the amount of a pollutant or alteration of the nature of the pollutant by the wastewater treatment system to a less toxic or harmless state in the effluent which is achieved by the system in 95 percent of the samples taken when measured according to the procedures set forth in 40 CFR, Part 403, Section 403.7 (c)(2), "General Pretreatment Regulations for

Existing and New Sources of Pollution" promulgated pursuant to the Act. SARA may modify pollutant discharge limits in the Federal Pretreatment Standards if the requirements contained in 40 CFR, Part 403, Section 403.7 are fulfilled and prior approval from the Approval Authority is obtained.

4.4 Specific Pollutant Limitations. No person shall discharge wastewater containing in excess of the pollutant limits below. These limits are based on either flow-proportional or time-proportional composite samples.

Metal	NOT TO EXCEED	
	Daily Composite	Grab Sample
mg/l arsenic	0.2	0.3
mg/l barium	2.0	4.0
mg/l boron	1.0	
mg/l cadmium	0.1	0.2
mg/l calcium		
mg/l chromium (total)	1.0	5.0
mg/l copper	1.0	2.0
mg/l cyanide (total)	2.5	
mg/l iron		
mg/l lead	1.0	1.5
mg/l manganese	2.0	3.0
mg/l mercury	0.005	0.01
mg/l nickel	2.0	3.0
mg/l PCB		
mg/l Potassium		
mg/l selenium	0.1	0.2
mg/l sodium		
mg/l silver	0.1	0.2
mg/l zinc	2.0	6.0
mg/l free or emulsified oils and grease	200	

Note: Specific pollutant limitations may be adjusted on a case by case basis, if shown through an engineering study, submitted by a registered professional engineer, that no detrimental impact will result to the POTW, its processes or by-products.

4.4.1 Other Heavy Metals. No other heavy metals or toxic materials may be discharged to the POTW without a permit from SARA specifying conditions of pretreatment, concentrations, volumes, and other applicable provisions.

Prohibited heavy metals and toxic materials include but are not limited to:

Antimony,  
Beryllium,  
Bismuth,  
Cobalt,  
Molybdenum,  
Tin,  
Uranyl ion,  
Rhenium,  
Strontium,  
Tellurium,  
Herbicides,  
Fungicides, and  
Pesticides.

#### 4.5 Storm Water and Other Unpolluted Drainage.

(a) No person may discharge to public sanitary sewers

- (1) unpolluted storm water, surface water, groundwater, roof runoff or subsurface drainage;
- (2) unpolluted cooling water;
- (3) unpolluted industrial process waters; or
- (4) other unpolluted drainage.

(b) In compliance with the Texas Water Quality Act and other statutes, SARA may designate storm sewers and other watercourses into which unpolluted drainage described in subsection (a) of this section may be discharged.

4.6 State Requirements. State specific pollutant requirements and limitations, if any, on indirect discharges shall immediately supersede and replace the requirements and limitations imposed by this Ordinance when the State requirements are more stringent than either the Federal or SARA standards and requirements.

4.7 SARA's Right of Revision. SARA reserves the right to amend this Ordinance at any time to establish more stringent specific pollutant limitations or requirements on indirect discharges to the Wastewater System if deemed necessary by SARA to protect the POTW processes or to cure or prevent an effluent quality problem in treated wastewater and/or resulting sludges. SARA reserves the right to amend this Ordinance to comply with the general objectives and purposes presented in Section 2 of this Ordinance.

4.8 Prohibition of Dilution. No user shall ever increase the use of process water, unpolluted water, surface water or storm water or in any other way attempt to dilute either a direct or indirect discharge as a partial or complete substitute for adequate treatment to achieve compliance with the specific pollutant limitations contained in the Federal Categorical Pretreatment Standards, or in any other specific pollutant limitations promulgated by SARA and/or State and incorporated in this Ordinance.

4.9 Accidental Discharges. Each user shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the owner or user's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection may be required to be submitted to SARA for review, and shall be approved by SARA before construction of the facility. No user who commences contribution to the POTW after the effective date of this Ordinance shall be permitted to introduce pollutants into the system until accidental discharge procedures have been approved by SARA. Review and approval of such plans and operating procedures shall not relieve the industrial user from the responsibility to modify the user's facility as necessary to meet the requirements of this Ordinance. In the case of an accidental discharge, it is the responsibility of the user to immediately telephone and notify the Manager of the incident. The notification shall include the time and location of the discharge, type of waste, concentration and volume, and corrective actions taken.

4.10 Written Notice. Within five (5) working days following an accidental discharge, the user shall be required to submit to the Manager or his designated representative, a written letter report describing the cause of the discharge and the measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as a result of damage to the POTW, the environment, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this Ordinance or other applicable law. Failure to notify the Manager of an accidental discharge may result in legal action or discontinuation of service.

4.11 Notice to Employees. Employers shall take measures to insure that all appropriate employees be advised of the notification procedure to be used in the event of an accidental discharge.



## SECTION 5 Fees.

5.1 Purpose. It is the purpose of this section to provide for the recovery of costs from users of SARA's wastewater disposal system for the implementation and continued operation of the program established herein.

5.2 Schedule of Fees. The fees will consist of four (4) basic charges. These include: a permit fee required of all Industrial users; a sampling fee to be levied at the time of sampling; an analysis fee to recover the costs of sample analysis; and, where applicable, an overstrength surcharge fee. The fee schedule will be attached to and become part of the Industrial Wastewater Discharge Permit. (See Appendix A)

## SECTION 6 Administration.

6.1 Wastewater Discharges. It shall be unlawful to indirectly discharge any industrial wastewater into the Wastewater System (POTW included therein) without first applying for and receiving a permit to do so. This rule shall apply except when the Manager or this Ordinance specifically authorizes an indirect discharge in full accordance with other provisions of this Ordinance.

### 6.2 Industrial Wastewater Discharge Permit.

6.2.1 Permit Application. Users required to obtain an Industrial Wastewater Discharge Permit shall complete and file an application with SARA on a form prepared by SARA. The information requested may include the following items

(a) Name(s), address(es), and location(s);

(b) SIC number according to the Standard Industrial Classification Manual, 1972, Bureau of the Budget, as amended;

(c) The nature and concentration of any pollutants in the discharge which are limited by SARA, State or Federal Pretreatment Standard, as determined by a Registered Professional Engineer; sampling and analysis shall be performed in accordance with procedures established by the EPA pursuant to Section 304 (g) of the Act and contained in 40 CFR, Part 136, as amended;

- (d) Time and duration of contribution;
- (e) Average daily and peak wastewater flow rates, including daily, monthly and seasonal variations if any;
- (f) Site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, sewer connections, and appurtenances by the size, location and elevation;
- (g) Description of activities, facilities and plant processes on the premises including all materials which are, or could be discharged;
- (h) Each product by type, amount, process or processes and rate of production;
- (i) Type and amount of raw materials processed (average and maximum per day);
- (j) Number and type of employees, and hours of operation of plant and, if required in accordance with other provisions herein, the proposed or actual hours of operation of pretreatment system;
- (k) Any other relevant information as may be deemed by SARA to be necessary to evaluate the permit application, or as required under Section 6.5 of this Ordinance.

**6.2.2 Permit Modifications.** Upon the promulgation of an applicable Categorical Pretreatment Standard, the Industrial Wastewater Discharge Permit of users subject to such Standards shall be revised to require compliance with such Standard within the time frame prescribed by such Standard. Where a user becomes subject to an applicable Categorical Pretreatment Standard, and has not previously submitted an application for an Industrial Wastewater Discharge Permit as required by 6.2.1, the user shall apply for an Industrial Wastewater Discharge permit within 180 days after the promulgation of the applicable Categorical Pretreatment Standard but shall also comply with such Standard within the time frame prescribed by such Standard regardless of local permit issuance schedule. In addition, the user with an existing Industrial Wastewater Discharge Permit shall submit to the Manager within 180 days after the promulgation of an applicable Categorical Pretreatment Standard the information required by paragraphs (a) through (c) and (k) of Section 6.2.1. The Manager reserves the right to modify

) )  
existing permits when in his judgment such modifications will protect the health and safety interests of the users of the POTW. Changes of occupancy, ownership or operations of a permitted business shall be reported to the Manager within thirty (30) days of such an occurrence and the user must further comply with Section 6.2.5 contained herein.

6.2.3 Permit Conditions. Industrial Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other applicable State and Federal regulations, as well as the user charges and fees established by SARA. Permits may contain the following:

(a) The unit charge or schedule of user charges and fees for the wastewater to be discharged to a Wastewater System;

(b) Limits on the average and maximum wastewater constituents and characteristics;

(c) Limits on average and maximum rate and time of discharge or requirements for flow regulations and equalization;

(d) Requirements for installation and maintenance of inspection and sampling facilities, including technical data relative to location, slope, and capacity of piping used in the sampling facility or discharge point;

(e) Specifications for monitoring programs which may include the number of sampling locations, frequency of sampling, number, types and standards for tests and reporting schedule;

(f) Compliance schedules;

(g) Requirements for submission of technical reports or discharge reports;

(h) Requirements for maintaining and retaining plant records relating to wastewater discharge as specified by SARA and affording SARA access thereto;

(i) Requirements for reporting the introduction of any new wastewater constituents or any substantial change in the volume or character of the wastewater constituents being introduced into the Wastewater System; (See Appendix C)

(j) Requirements for reporting slug discharges as per the provisions of this Ordinance;

(k) Other conditions as deemed appropriate by SARA to ensure compliance with Ordinance.

6.2.4 Permit Duration. Permits shall be issued for a specified time period, not to exceed five (5) years. A permit may be issued for a period of less than a year or may be stated to expire on a specific date. The terms and conditions of the permit are subject to modification by SARA during the term of the permit as limitations or requirements as identified in this Ordinance are modified or other just cause exists that warrants modification. The user shall be informed of any proposed changes in his permit prior to the effective date of the proposed change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

6.2.5 Permit Transfer. Industrial Wastewater Discharge Permits are issued to a specific user for a specific operation at a specific location. A wastewater discharge permit shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation without the prior approval of SARA.

6.2.6 Waste Haulers Permit. Wastewater Discharge Permits for waste haulers will be issued in accordance with the provisions of this Ordinance. All waste haulers will discharge into a manhole at a designated treatment plant site. No off-site discharges will be permitted.

6.3 Monitoring Facilities. The Wastewater System may require monitoring facilities that allow inspection, sampling, and flow measurement of the discharge point and/or internal drainage systems located on private property. These facilities shall be provided by the user and operated at the user's expense. The monitoring facility should normally be situated on the user's premises, but SARA may, when such a location would be impractical or cause undue hardship on the user, allow the facility to be constructed in the public street or sidewalk area and located so that it will not create a public safety hazard nor be obstructed by structures, landscaping or parked vehicles.

There shall be ample room in or near such sampling manhole or facility to safely allow for inspection personnel to position sampling equipment and prepare field samples for analysis.

Whether constructed on public or private property, the sampling and monitoring facilities shall be provided in accordance with the Wastewater System requirements and all applicable local construction standards and specifications.

6.4 Inspection and Sampling. SARA shall inspect the facilities of any user to ascertain whether the purpose of this Ordinance is being met and all requirements are being complied with. Employers and employees of premises where industrial wastewater is generated or discharged shall allow authorized SARA representatives displaying proper identification ready access to the premises at all reasonable times for the purpose of: inspecting wastewater generating operations and processes; wastewater flow monitoring and sampling; and examination of business records pertinent to wastewater volume and quality. Where a user has safety and/or security measures in force which require user issuance of special safety equipment and/or proper identification and clearance before allowing entry into their premises, the user shall make necessary arrangements with their security guards or similar personnel, so that upon presentation of suitable identifications, personnel from SARA, the State, or EPA will be permitted to enter, without delay, for the purpose of performing responsibilities reasonably associated with those stated above and reasonably required to accomplish the purposes and objectives of this Ordinance.

Concentration and constituent analysis of wastewater from samples collected from any industrial user may be determined by SARA or its authorized agent, a Registered Professional Engineer contracted by the discharger, or by any other qualified party approved by SARA. If the discharger elects to contract with a Registered Professional Engineer for sampling and analysis of wastewater, the report submitted should contain a statement that the samples collected and values determined are based on daily composite sampling representative of the establishment's flow. The volume of wastewater may be determined by methods similar to those typically used to calculate the monthly general service customer sewer service charge.

6.5 Pretreatment. Users shall provide necessary wastewater treatment as required to comply with this Ordinance and to achieve compliance with all Federal Categorical Pretreatment Standards within compliance schedule requirements as specified by the Federal Pretreatment regulations. Any facilities required to pretreat wastewater to quality standards required by SARA or Approving Authority shall be provided, operated, and maintained at the user's expense. Detailed plans showing the pretreatment facilities and an outline of the

pretreatment facility operating procedures shall be prepared by a Registered Professional Engineer and submitted to the Manager for review. All plans shall be approved by the Manager before construction of the facility. The user shall insure that construction of said treatment facility is accomplished within the time period specified by SARA. A schedule for completion with periodic progress reports may be required. The review of such plans and operating procedures will in no way relieve the user from the responsibility of modifying the facility as necessary to produce an effluent acceptable to SARA under the provisions of this Ordinance. Any subsequent changes in the pretreatment facilities or their method of operation shall be reported to and be reviewed for approval by the Manager prior to the user's initiation of the changes. All records relating to compliance with Pretreatment Standards shall be made available to officials of SARA, the EPA or the State of Texas upon request and shall be retained by the user for a minimum of three (3) years or until any ongoing litigation involving the pretreating user, and related to compliance with this Ordinance, has been resolved.

6.5.1 Initial Compliance Report. Within thirty (30) days following the initial date required pretreatment facilities are operational or, required modification of production processes affecting the quality of wastewater discharge are complete, or, in the case of a new source, the commencement of the introduction of wastewater into the POTW, any user subject to Pretreatment Standards and Requirements shall submit to the Manager a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by Pretreatment Standards and Requirements. The report will include average and maximum daily flows for these process units in the user facility which are limited by such Pretreatment Standards or Requirements. The report shall state whether the applicable Pretreatment Standards or Requirements are being met on a consistent basis and, if not, what additional operation and maintenance and/or pretreatment is necessary to bring the user into compliance with the applicable Pretreatment Standards or Requirements. This statement shall be signed by an authorized representative of the industrial user, and certified by a Registered Professional Engineer. For industrial users not falling under Categorical Standards, certain reporting requirements may be modified as deemed appropriate.

6.5.2 Periodic Compliance Reports.

(1) Any user subject to a Categorical Pretreatment Standard requiring pretreatment facilities shall, in accordance with 40 CFR, Part 403, submit to the Manager brief reports

indicating the nature and concentration of pollutants in the effluent which are limited by such Pretreatment Standards. These brief reports will be submitted at least twice annually or as required by the Manager. In addition, these reports shall include a record of all daily flows which during the reporting period exceeded the average daily flow reported by the user in the application as described in Sections 6.2.1 (e) and 6.2.3 (c) of this Ordinance. At the discretion of the Manager and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Manager may agree to alter the months during which the above reports are to be submitted.

(2) The Manager may impose mass limitations on users, which become a part of the permit, in cases where the imposition of such mass limitations are appropriate. In such cases, the report required by subparagraph 6.5.2 (1) shall indicate the mass of pollutants in the effluent of the user regulated by Pretreatment Standards. Mass limitations are expressed for a pollutant in terms of the permissible mass discharge in pounds or kilograms per day or in pounds or kilograms per unit measure of product produced by the industrial process being regulated. These reports shall contain the results of sampling and analysis of the discharge, including the flow, nature, and concentration, or production and mass where requested by the Manager, of pollutants contained therein which are limited by the applicable Pretreatment Standards. The frequency of monitoring shall be prescribed in the Industrial Wastewater Discharge Permit or in the applicable Pretreatment Standard. All analyses shall be performed in accordance with procedures established by the Administrator pursuant to Section 304 (g) of the Act and contained in 40 CFR, Part 136 and amendments thereto or with any other test procedures approved by the Administrator. Sampling shall be performed in accordance with techniques approved by the Administrator.

6.6 Confidential Information. User information and data obtained from reports, questionnaires, permit application, permits, and monitoring programs and from inspections shall be available to SARA, TDWR and EPA without restriction. Regarding distribution of the above described information to other interested parties, including the general public; unless the user specifically requests and is able to demonstrate to the satisfaction of SARA that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the user, the information will be made available to the public.

When requested by the person furnishing a report, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available, upon written request, to TDWR and EPA for uses related to this Ordinance, the National Pollutant Discharge Elimination System (NPDES) Permit, State Disposal System permit and/or the Pretreatment Program; provided, however, that such portions of a report shall be available for use by the State or EPA in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information.

#### SECTION 7. Enforcement.

7.1 Dangerous Discharges. The Manager may unilaterally order the suspension of water and/or wastewater services(s) to any user in order to prevent or eliminate an indirect discharge which would in his judgment, cause imminent, serious endangerment to the environment, significant interference with the POTW, or violations of SARA's NPDES permit conditions.

Concurrent with ordering such a suspension, the Manager shall issue a brief written letter report containing information and investigative data upon which the Manager relied in ordering the suspension of service(s). A copy of this report will be expeditiously forwarded to the affected user(s).

The Manager shall order reinstatement of any discontinued water and/or wastewater service(s) upon presentation to him by the user of written registered professional engineering proof or other written proof acceptable to SARA that the dangerous discharge has been eliminated and that recurrence is not possible.

Cost incurred by SARA or its agents in detecting, investigating, monitoring, measuring and eliminating the dangerous discharge, along with any disconnect and reconnect fees, shall be reimbursed to SARA by the user(s) responsible for the dangerous discharge. Any property damages to the POTW or its appurtenant structures resulting from the dangerous discharge shall also be borne by the user(s) responsible for the dangerous discharge.

Because of the urgent public need to immediately abate such dangerous discharges, the affected user is not afforded an administrative review hearing before the Board of Directors prior to the Manager ordering suspension of water



and/or wastewater service(s). Subsequent to an order to suspend service(s), the Manager shall issue a notice of alleged violation to the affected user in accordance with Section 7.2 below. This action will afford the affected user an opportunity for administrative procedural review of an alleged violation of this Ordinance and/or and Industrial Wastewater Discharge Permit.

7.2 Notice of Alleged Violations. Whenever the Manager believes that a user has violated or is violating this Ordinance and/or an Industrial Wastewater Discharge Permit, the Manager or his designated representative may serve (either personally or by registered or certified mail return receipt requested) upon such user a written notice stating the nature of the alleged violation. The recipient of an alleged violation notice must respond in writing to the Manager or his designated representative within fifteen (15) working days of the mailing date or personal delivery date of such notice.

7.3 Response by User to Notice of Alleged Violation. The user responding to receipt of an alleged violation notice shall file written response in substantially one of the two following forms:

7.3.1 Should the user admit his or her responsibility for the alleged violation, the user must submit a letter report to the Manager.

If the nature of the violation of either the permit or this Ordinance involves an administrative or procedural noncompliance, the letter report shall contain information regarding corrective measures and time schedules the user has adopted to assure expeditious compliance.

7.3.2 Should the user deny his or her responsibility for the alleged violation, the user must submit a letter report to the Manager.

Regardless of the nature of the alleged violation (be it substantive regarding specific discharge(s) of industrial waste, or administrative or procedural) the letter report may request an administrative hearing before the Board of Directors to address the alleged violation.

In the alternative, the user may waive his or her right to an administrative hearing before the Board of Directors and defend against any legal action taken by SARA in the appropriate court of jurisdiction.

Within ten (10) working days of the receipt by the Manager of any written request for a hearing, the Manager or his designated representative shall respond in writing to the user notifying the user of the date, time, and location of the hearing. All hearings shall take place within thirty (30) working days of the receipt by the Manager of the written request for such hearing.

7.3.3 Should the recipient of an alleged violation notice fail to respond in writing to the Manager within the fifteen (15) working days response period as outlined above in 7.2, 7.3, 7.3.1, 7.3.2, the recipient user is deemed to have waived his or her right to request an administrative hearing before the Board of Directors and may be sued or prosecuted for the consequences of the violation cited in the notice of alleged violation at a legal proceeding in the appropriate municipal, county, district, or federal court.

7.4 Board of Directors Hearing. The purpose and intent of the Board hearing process is to afford a user requesting the hearing a non-litigative forum at which alleged Ordinance or Permit violations may be reviewed and/or resolved. The Board of Directors may issue notices requesting the attendance and testimony of witnesses and experts familiar with alleged violations. The Board may also call for the production of evidence relevant to the alleged violation. At the hearing, a majority of the Board of Directors shall receive evidence and testimony from both SARA staff and the user in both written and oral form. At the conclusion of the hearing the Board members present shall prepare a summary report of the proceedings addressing topics such as: suggested enforcement or legal actions, if any; compliance schedules; proposed amendments or modifications to either the Industrial Waste Ordinance or an Industrial Wastewater Discharge Permit; discontinuance of wastewater services; changes in administrative or enforcement staff procedures; suggested pretreatment facilities for a user or class of user; etc.

7.5 Legal Action. In spite of any other provisions contained in this Ordinance, SARA reserves the right to at any time seek legal and/or equitable remedies against any person or corporation allegedly violating this Ordinance, the provisions of an Industrial Wastewater Discharge Permit, and/or Federal or State laws governing water quality and industrial wastewater pretreatment. A legal proceeding prosecuted under this Ordinance does not constitute a waiver by SARA of any right SARA may have to join in a legal action originating from some alternative source of law.

The SARA staff may commence such actions for appropriate legal and/or equitable relief in courts having proper jurisdiction upon authorization by the Board of Directors to do so.

#### SECTION 8 Penalties and Costs.

8.1 Civil Penalties. Any user who is found guilty in the Municipal Court of the City in which a violation of this Ordinance or an Industrial Wastewater Discharge Permit occurs, or by the Justice of the Peace of the Precinct in which a violation occurs shall be assessed a fine not to exceed \$200.00 dollars for each offense. Each day on which a violation shall occur or continue shall be deemed a separate and distinct actionable offense. In addition to the penalties provided for herein, SARA may seek recovery in a court of competent jurisdiction for any actual damages to the POTW. Damages to the POTW specifically include contamination of sludges, residues, or of SARA's designated sludge disposal area which result from unauthorized discharge into the POTW; and SARA may seek recovery of all costs associated with special handling and disposal procedures required to comply with Section 405 of the Act, the Toxic Substances Control Act, the Solid Waste Disposal Act (SWDA), Texas Department of Health and Texas Department of Water Resources sludge management regulations which become applicable as a result of such contamination. SARA may also seek reasonable attorney fees, court costs, and other expenses of litigation along with all other relief, both in law and in equity, to which it might be entitled. Additional recoveries and relief in law and/or equity under existing Federal or State law are not precluded by specific recoveries obtained by SARA under this Section of the Ordinance.

8.2 Falsifying Information. Any person who knowingly makes any false statements, representations or certifications in any industrial wastewater discharge permit application, record, report, plan or other document filed with SARA or required to be maintained pursuant to this Ordinance, or the Industrial Wastewater Discharge Permit; or who tampers with, or knowingly renders inoperable any monitoring device; or who falsifies records required to be kept pursuant to this Ordinance; shall, upon conviction, be punished by a fine not to exceed \$200.00 dollars.

#### SECTION 9. Severability.


9.1 If any word, phrase, clause, paragraph, part of provision of this Ordinance or its subsections or the application thereof to any person or circumstance shall be held

to be invalid or unconstitutional, the remainder of that subsection and of this Ordinance shall nevertheless be valid, and the Board of Directors hereby declares that that subsection would have been enacted without such invalid, or unconstitutional word, phrase, clause, paragraph, part or provision.

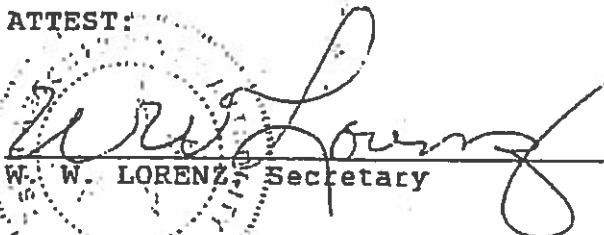
SECTION 10. Conflict.

All other Ordinances and parts of other Ordinances inconsistent or conflicting with any part of this Ordinance are hereby repealed to the extent of such inconsistency or conflict.

PASSED AND APPROVED this, the 15th day of May, A.D., 1985.

  
Cecil W. Bain, Chairman

ATTEST:

  
W. W. LORENZ, Secretary

ACKNOWLEDGEMENT OF CHAIRMAN

STATE OF TEXAS

COUNTY OF BEXAR

BEFORE ME, the undersigned authority, on this day personally appeared CECIL W. BAIN, Chairman of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY, a political subdivision of the State of Texas; known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and Deed of said political subdivision.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 15<sup>th</sup> day of May A. D. 1985.

Rosalinda R. Rivas  
Rosalinda R. Rivas  
Notary Public in and for  
the State of Texas

My commission expires on: 05-24-85

CERTIFICATE OF SECRETARY

SAN ANTONIO RIVER AUTHORITY

San Antonio, Bexar County, Texas

I hereby certify the above to be a duplicate original of the record in the matter of the adoption of Ordinance No. 0-805 and of the Ordinance as officially promulgated and on file in the Ordinance Book of this office, and I further certify that said Ordinance was adopted by the Members of said Board by Ten (10) affirmative votes, zero (0) negative votes, and Two (2) not voting, at a Regular Meeting of the Board of Directors of said Authority held on the 15th day of May, A. D., 1985, at San Antonio, Bexar County, Texas.

IN TESTIMONY WHEREOF, witness my hand and the official seal of the SAN ANTONIO RIVER AUTHORITY at San Antonio, Bexar County, Texas, on this the 15th of May, A. D. 1985.

  
W. W. LORENZ, Secretary



## EXHIBIT C

### Wholesale Customer Charge Schedule

1. Single Family Residential - For each single family residential unit connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$8.99 Fixed Charge plus \$4.81/1,000 gallons of Winter Average Water Consumption per month. The winter average water consumption is defined as the computed average of the monthly metered water consumption for three consecutive billing periods that fall wholly within the prior winter's season between November 15 and the following March 15. Where the account has not established a winter average, the Customer's representative winter average shall be used.

Fixed Charge - includes a payment for the debt of the system plus a computed capital replacement charge used to reduce the need for future system debt for capital projects.

Winter Average Water Consumption - This part of the charge based on winter average water consumption is waived when the unit is vacant.

2. All Other Users - For all other users, not single family residential units, connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$6.44/1,000 gallons of metered water consumption each month.

3. Regulatory Assessment Fee - The Texas Regulatory Assessment Fee of one-half of one percent as established by Ordinance No. O-955, passed and approved September 18, 1991, is hereby ratified, confirmed and carried forward.

**EXHIBIT C**  
**Schedule of Connection Fees (Impact Fees)**

- I. **(Wholesale System Connection Fees (Impact Fees):** Connection Fees (Impact Fees) for the River Authority's wholesale system are hereby established in the following multiples of one (1) Equivalent Dwelling Unit, which connection shall have a value of \$3,250. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit by the appropriate multiplier from the following list. Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee (impact fee) consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

TYPE OF CONNECTION	MULTIPLIER
Single family residence	1
Swimming pool	.2
Multi-family residential, including townhouses, condominiums, duplexes, etc. (per dwelling unit)	1
Apartments	.6
Hotels/motels with cooking facilities in room (per dwelling unit)	.6
Hotels/motels without cooking facilities in room (per dwelling unit)	.33
Trailer/mobile home parks (per trailer lot/space)	1
Camper campgrounds (per camper site)	.33
Hospital (per design bed)	.66
Nursing/rest home (per design bed)	.33
School with showers (per design student)	.066
School without showers (per design student)	.05

	DIAMETER OF SERVICE LINE		
	4"	6"	8"
Service station	1X	2X	4X
Swimming pool (commercial)	1X	2X	4X
Office bldg. retail & convenience stores	1X	2X	4X
Bowling alley	1X	2X	4X
Theater, drive-in theater	1X	2X	4X



Factory, industry – see also paragraph 1(b) hereof	1X	2X	4X
Spectator stadium	1X	2X	4X
Church	1X	2X	4X
Restaurant	2X	4X	8X

2. Policy for Payment of Connection Fees (Impact Fees):

- (a) The Customer shall certify to the River Authority , on forms to be provided by the River Authority, the connection or connections that it desires to make to its local wastewater facilities. Simultaneously, the Customer shall tender to the River Authority its payment of all the connection fees (impact fees) for which certification has been made.
- (b) Upon acceptance of the Customer's certificate and payment, the River Authority shall issue its permit or permits to the Customer authorizing the making of the physical connection or connections.

3. Remedy for Failure to Pay Connection Fees (Impact Fees):

In the event that the Customer should permit a service line of any classification to be connected to its local wastewater facilities without payment of the appropriate connection fee (impact fee) to the River Authority , the River Authority shall be entitled to liquidated damages in the amount of One Hundred Dollars (\$100) for any such unpaid connection fee (impact fee) in addition to the appropriate fee itself.

4. Balance Due Policy:

Full payment of appropriate connection fees (impact fees) shall be made for all connections for which application is made on or after the date execution of the agreement. Where only a portion of the wastewater connection fee (impact fee) has previously been paid to secure conditional connection approval, the balance due shall be the difference between the amount paid and the connection fee (impact fee) in effect at the time the balance is paid.



Interlocal Agreement Between  
San Antonio River Authority  
and  
The City of Schertz

Amendment 1

RESOLUTION NO. 16-R-48

**A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF SCHERTZ, TEXAS AUTHORIZING AN AMENDMENT TO THE EXISTING AGREEMENT WITH THE SAN ANTONIO RIVER AUTHORITY FOR SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL, AND OTHER MATTERS IN CONNECTION THEREWITH**

WHEREAS, the City staff of the City of Schertz (the "City") has recommended that the City enter into an amended agreement with the San Antonio River Authority

WHEREAS, this amendment will allow us to collect the appropriate fees to meet the San Antonio River Authority rate schedule; and

WHEREAS, the City Council has determined that it is in the best interest of the City to approve Amendment 1 with the San Antonio River Authority attached hereto as Exhibit A;

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SCHERTZ, TEXAS THAT:

The City Council hereby authorizes the City Manager to execute the amendment with the San Antonio River Authority in substantially the form set forth on Exhibit A.

Section 1. The recitals contained in the preamble hereof are hereby found to be true, and such recitals are hereby made a part of this Resolution for all purposes and are adopted as a part of the judgment and findings of the City Council.

Section 2. All resolutions or parts thereof, which are in conflict or inconsistent with any provision of this Resolution are hereby repealed to the extent of such conflict, and the provisions of this Resolution shall be and remain controlling as to the matters resolved herein.

Section 3. This Resolution shall be construed and enforced in accordance with the laws of the State of Texas and the United States of America.

Section 4. If any provision of this Resolution or the application thereof to any person or circumstance shall be held to be invalid, the remainder of this Resolution and the application of such provision to other persons and circumstances shall nevertheless be valid, and the City Council hereby declares that this Resolution would have been enacted without such invalid provision.

Section 5. It is officially found, determined, and declared that the meeting at which this Resolution is adopted was open to the public and public notice of the time, place, and subject matter of the public business to be considered at such meeting, including this Resolution, was given, all as required by Chapter 551, Texas Government Code, as amended.

Section 6. This Resolution shall be in force and effect from and after its final passage, and it is so resolved.

PASSED AND ADOPTED, this 28<sup>th</sup> day of June, 2016

CITY OF SCHERTZ, TEXAS

  
\_\_\_\_\_  
Michael R. Carpenter, Mayor

ATTEST:

  
\_\_\_\_\_  
Brenda Dennis, City Secretary

(CITY SEAL)

**EXHIBIT A**  
**SERVICE ORDER AGREEMENT**

ORDINANCE NO. O-1424

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY AUTHORIZING AND DIRECTING THE GENERAL MANAGER TO EXECUTE AND THE ASSISTANT SECRETARY TO ATTEST, RESPECTIVELY, AMENDMENT NO. 1 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT WITH THE CITY OF SCHERTZ

Preamble

WHEREAS, the SAN ANTONIO RIVER AUTHORITY has entered into a SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT, dated as of March 24, 2015, with the City of SCHERTZ for the purpose of providing wastewater treatment services (the "Contract"); and

WHEREAS, the SAN ANTONIO RIVER AUTHORITY has developed and SCHERTZ has agreed to adjusted wholesale customer charges under the Contract beginning July 1, 2016; and


WHEREAS, a copy of AMENDMENT NO. 1 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT is attached hereto as Attachment "A".

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY:

That the General Manager and the Assistant Secretary be and the same hereby are authorized and directed to execute and attest, respectively, AMENDMENT NO. 1 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT, substantially in the form as attached hereto as Attachment "A".

PASSED AND APPROVED this 15<sup>th</sup> day of June, 2016.

For:   
SALLY BUCHANAN, Chairman

ATTEST:  
  
for HECTOR R. MORALES, Secretary

ACKNOWLEDGEMENT OF CHAIRMAN

STATE OF TEXAS       §  
                                 §  
COUNTY OF BEXAR   §

BEFORE ME, the undersigned authority on this day personally appeared SALLY BUCHANAN, Chairman of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY, a political subdivision of the State of Texas known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and deed of said political subdivision.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 15<sup>th</sup> day of June, 2016.



*Linda Kay Whitaker*  
\_\_\_\_\_  
LINDA KAY WHITAKER, Notary Public  
In and for the State of Texas  
My commission expires: 9/12/2016



CERTIFICATE OF SECRETARY

SAN ANTONIO RIVER AUTHORITY           §  
   §  
SAN ANTONIO, BEXAR COUNTY, TEXAS   §

I hereby certify the above and foregoing to be a duplicate original of Ordinance No. O-1424 of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY as passed and approved by the members of said Board at a regular meeting of the Board of Directors of said AUTHORITY held on June 15, 2016, in San Antonio, Bexar County, Texas, at which a quorum was present, as shown by the Minutes of said meeting.

IN TESTIMONY WHEREOF, witness my hand and the official seal of the SAN ANTONIO RIVER AUTHORITY on this the 15<sup>th</sup> day of June, A.D., 2016, in San Antonio, Bexar County, Texas.

  
\_\_\_\_\_  
fol. HECTOR R. MORALES, Secretary

**Attachment A**

THE STATE OF TEXAS     §  
                                     §  
COUNTY OF BEXAR       §

**AMENDMENT NO. 1 TO SEWAGE TRANSPORTATION,  
TREATMENT AND DISPOSAL CONTRACT**

This Amendment No. 1 is made and entered into as of the 15<sup>th</sup> day of June, 2016, by and between the SAN ANTONIO RIVER AUTHORITY (hereinafter called "AUTHORITY"), and its wholesale customer, the CITY OF SCHERTZ, TEXAS (hereinafter called "SCHERTZ").

**W I T N E S S E T H**

WHEREAS, the AUTHORITY has heretofore entered into a contract with SCHERTZ, effective March 24, 2015, providing that the AUTHORITY shall transport, treat and dispose of the wastewater of the above-named wholesale customer; and

WHEREAS, said contract provides that the Wholesale Customer Charge Schedule and the wholesale connection fee (impact fee) schedule set out in Exhibit C thereof shall be reviewed annually and adjusted by mutual agreement of the parties in accordance with the terms and provisions of the contract; and

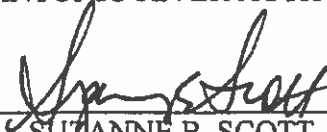
WHEREAS, THE AUTHORITY has developed and SCHERTZ has agreed to adjusted wholesale customer charges for the Fiscal Year beginning July 1, 2016.

NOW, THEREFORE, the parties hereto, in consideration of the mutual benefits, agreements and undertakings hereinafter set forth, with respect to the present long-term contracts between the parties hereby contract and agree that:

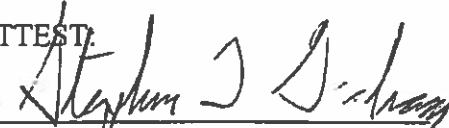
1. EXHIBIT C, Wholesale Customer Charge Schedule, which is attached hereto as Exhibit "A", be and the same hereby is substituted as of July 1, 2016, for Exhibit C contained in the present contracts between the parties.
2. EXHIBIT C, Schedule of Connections Fees (Impact Fees), as attached hereto as Exhibit "B" is hereby ratified, confirmed and carried forward.

IN WITNESS WHEREOF, the parties hereto, acting under the authority of their respective governing bodies, have caused this Amendment No. 1 to be duly executed in several counterparts, each of which shall constitute an original, as of this 15<sup>th</sup> day of June, 2016.


SAN ANTONIO RIVER AUTHORITY

  
Name: SUZANNE B. SCOTT  
Title: General Manager


ATTEST:

  
Name: STEPHEN T. GRAHAM  
Title: Assistant Secretary

CITY OF SCHERTZ, TEXAS

  
Name: John C. Kessel  
Title: City manager

ATTEST:

  
Name: Brenda Dennis  
Title: City Secretary

## EXHIBIT A

### Wholesale Customer Charge Schedule

- i. Single Family Residential - for each single family residential unit connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$12.97 fixed charge plus \$4.98 per 1,000 gallons of winter average water consumption per month. The charge based on winter average water consumption is waived when the unit is vacant. The winter average water consumption is defined as the computed average of the monthly metered water consumption for three consecutive billing periods that fall wholly within the prior winter's season between November 15 and the following March 15. Where the account has not established a winter average, the Customer's representative winter average shall be used.

The fixed charge includes a payment for any debt of the system plus a computed capital replacement charge used for future system capital improvement projects.

2. All Other Users - for all other users, not single family residential units, connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$7.79 per 1,000 gallons of metered water consumption each month.

3. Regulatory Assessment Fee - The Texas Regulatory Assessment Fee of one-half of one percent as established by Ordinance No. O-955, passed and approved September 18, 1991, is hereby ratified, confirmed and carried forward.
4. The effective date of this schedule shall be July 1, 2016.

EXHIBIT B  
Schedule of Connection Fees (Impact Fees)

1. Wholesale System Connection Fees (Impact Fees): Connection Fees (Impact Fees) for the River Authority's wholesale system are hereby established in the following multiples of one (1) Equivalent Dwelling Unit, which connection shall have a value of \$3,250. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit by the appropriate multiplier from the following list. Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee (impact fee) consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

Industrial Connection Fee (Impact Fee) and Service Charges – the provisions of SAN ANTONIO RIVER AUTHORITY Ordinance No. O-805, passed and approved May 15, 1985, which is by reference included herein and made a part hereof, shall govern all aspects of industrial wastes discharged to the San Antonio River Authority Martinez - Salatrillo Creeks Sewage Transportation and Treatment System, specifically including fees and charges therefore. It is understood and agreed by the parties that when governing rules, regulations, orders, ordinances or other such requirements by the wholesale Customers are more stringent with respect to such industrial wastes, such wholesale Customer requirements shall prevail.

TYPE OF CONNECTION	MULTIPLIER
Single family residence	1.00
Swimming pool	0.20
Multi-family residential, including townhouses, condominiums, duplexes, etc. (per dwelling unit)	1.00
Apartments	0.60
Hotels/motels with cooking facilities in room (per dwelling unit)	0.60
Hotels/motels without cooking facilities in room (per dwelling unit)	0.33
Trailer/mobile home parks (per trailer lot/space)	1.00
Camper campgrounds (per camper site)	0.33
Hospital (per design bed)	0.66
Nursing/rest home (per design bed)	0.33
School with showers (per design student)	0.066
School without showers (per design student)	0.05

	DIAMETER OF SERVICE LINE		
	4"	6"	8"
Service station	1X	2X	4X
Swimming pool (commercial)	1X	2X	4X
Office bldg. retail & convenience stores	1X	2X	4X
Bowling alley	1X	2X	4X
Theater, drive-in theater	1X	2X	4X
Factory, industry – see also paragraph 1(b) hereof	1X	2X	4X
Spectator stadium	1X	2X	4X
Church	1X	2X	4X
Restaurant	2X	4X	8X

2. Policy for Payment of Connection Fees (Impact Fees):

- (a) The Customer shall certify to the San Antonio River Authority, on forms to be provided by the River Authority, the connection or connections that it desires to make to its local wastewater facilities. Simultaneously, the Customer shall tender to the River Authority its payment of all the connection fees (impact fees) for which certification has been made.
- (b) Upon acceptance of the Customer's certificate and payment, the River Authority shall issue its permit or permits to the Customer authorizing the making of the physical connection or connections.

3. Remedy for Failure to Pay Connection Fees (Impact Fees):

In the event that the Customer should permit a service line of any classification to be connected to its local wastewater facilities without payment of the appropriate connection fee (impact fee) to the River Authority, the River Authority shall be entitled to liquidated damages in the amount of One Hundred Dollars (\$100) for any such unpaid connection fee (impact fee) in addition to the appropriate fee itself.

4. Balance Due Policy:

Full payment of appropriate connection fees (impact fees) shall be made for all connections for which application is made on or after the date of execution of the agreement. Where only a portion of the wastewater connection fee (impact fee) has previously been paid to secure conditional connection approval, the balance due shall be the difference between the amount paid and the connection fee (impact fee) in effect at the time the balance is paid.

Interlocal Agreement Between  
San Antonio River Authority  
and  
The City of Schertz

Amendment 2

**THE STATE OF TEXAS**

**COUNTY OF BEXAR**

**AMENDMENT NO. 2 TO SEWAGE TRANSPORTATION,  
TREATMENT AND DISPOSAL CONTRACT**

This Amendment No. 2 (the "Amendment"), is made and entered into as of the 15<sup>th</sup> day of March, 2017, by and between The City of Schertz, a Texas municipal corporation (hereinafter referred to as "CITY"), and the San Antonio River Authority, a conservation and reclamation district (hereafter referred to as "RIVER AUTHORITY,") headquartered in San Antonio, Texas.

**WHEREAS**, The RIVER AUTHORITY and CITY entered into an Interlocal Agreement effective as of March 24, 2015 (the "Agreement") providing that the RIVER AUTHORITY shall transport, treat and dispose of the wastewater of CITY, a wholesale customer of the RIVER AUTHORITY; and

**WHEREAS**, the contract provides that the Wholesale Customer Charge Schedule and the wholesale connection fee (impact fee) schedule set out in Exhibit C thereof shall be reviewed annually and adjusted by mutual agreement of the parties in accordance with the terms and provisions of the contract; and

**WHEREAS**, the RIVER AUTHORITY has proposed and CITY has agreed to adjust the annual calendar schedule for notice of rate adjustments under the Agreement; and;

**WHEREAS**, the Parties desire to enter into this AMENDMENT No. 2 to effectuate these changes;

**NOW THEREFORE**, the parties hereto, in consideration of the mutual benefits, agreements and undertakings hereinafter set forth, with respect to the present long-term contracts between the parties hereby contract and agree that:

1. EXHIBIT C, San Antonio River Authority – Schedule of Wholesale Customer Charge Schedule, which is attached hereto as Exhibit "C", is substituted for the prior Exhibit C "Wholesale Customer Charge Schedule" and "Schedule of Connections Fees (Impact Fees)" which was adopted in the Amendment No. 1 on June 15, 2016, and the attached Exhibit C "San Antonio River Authority – Wholesale Customer Charge Schedule" is hereby adopted, confirmed and carried forward in the present contract between the Parties.

2. EXHIBIT E, San Antonio River Authority – Schedule of Utilities Operations Fees, which is attached hereto as Exhibit "E", is hereby adopted, confirmed and carried forward in the present contract between the Parties.



3. Section V. of the Agreement is replaced and superseded by the following new Section V.

#### V. CHARGES

City shall make payments to River Authority for (i) sewage transportation, treatment and disposal, (ii) fees included in the River Authority's industrial waste control ordinance, including extra strength sewage treatment, (iii) industrial cost recovery, (iv) connection fees and (v) for any other expenditures which are the responsibility of City under this Agreement. The initial wholesale charges to City for sewage transportation, treatment and disposal; the charges for extra strength wastes; the industrial cost recovery charges; and the connection fees to be charged to City shall be based on "San Antonio River Authority – Wholesale Customer Charge Schedule" as shown in the attached Exhibit "C" and the "San Antonio River Authority – Schedule of Utilities Operations Fees" as shown in the attached Exhibit "E".

River Authority will adjust its charges to the City annually, on July 1 of each calendar year. On or before June 1 of each year, River Authority will give written notice to City of the charges for the following year. River Authority shall not be responsible to City or its customers for any issues related to customer billings.

Within thirty days of the close of each calendar month, a statement of connections, listing of connections served by address, and the payments called for in this Agreement shall be forwarded to River Authority by City. River Authority shall have the right to verify and audit reported connections. Delinquent payments to River Authority shall incur a penalty based on State of Texas Prompt Payment Act.


4. All other terms and provisions of the Agreement shall remain in full force and effect.

*(signatures on the following page)*

IN WITNESS WHEREOF, the PARTIES hereto have caused this Amendment to be executed by their duly authorized representatives.

**CITY OF SCHERTZ**

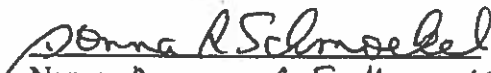
By:

  
\_\_\_\_\_  
John C. Kessel  
City Manager

Date:

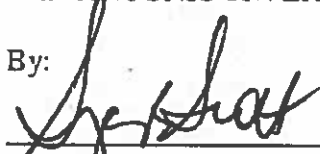
7-17-2017

ATTEST:

  
\_\_\_\_\_  
Name: DONNA R. SCHMOEDEL  
TITLE: DEPUTY CITY SECRETARY

**SAN ANTONIO RIVER AUTHORITY**


By:

  
\_\_\_\_\_  
Suzanne B. Scott  
General Manager


Date:

5-23-17

ATTEST:

  
\_\_\_\_\_  
Name: STEPHEN T. GRAHAM  
TITLE: Assistant General Manager

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Name: ALLISON ELDER  
TITLE: Director of Legal Services

## EXHIBIT C

### Wholesale Customer Charge Schedule

1. Single Family Residential - for each single family residential unit connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$12.97 fixed charge plus \$4.98 per 1,000 gallons of winter average water consumption per month. The charge based on winter average water consumption is waived when the unit is vacant. The winter average water consumption is defined as the computed average of the monthly metered water consumption for three consecutive billing periods that fall wholly within the prior winter's season between November 15 and the following March 15. Where the account has not established a winter average, the Customer's representative winter average shall be used.

The fixed charge includes a payment for any debt of the system plus a computed capital replacement charge used for future system capital improvement projects.

2. All Other Users - for all other users, not single family residential units, connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$7.79 per 1,000 gallons of metered water consumption each month.

1. Regulatory Assessment Fee - The Texas Regulatory Assessment Fee of one-half of one percent as established by Ordinance No. O-955, passed and approved September 18, 1991, is hereby ratified, confirmed and carried forward.
2. The effective date of this schedule shall be July 1, 2016.

## EXHIBIT E

### San Antonio River Authority – Schedule of Utilities Operation Fees

#### 1. Connection and Impact Fees:

- a. "Connection Fee", as described by Water Code Chapter 49.212, means a charge or fee that is imposed by San Antonio River Authority for construction, installation, or inspection of a tap or connection to San Antonio River Authority water, sanitary sewer, or drainage facilities, including all necessary service lines and meters, for capacity in storm water detention or retention facilities and related storm water conveyances, or for wholesale facilities that serve such water, sanitary sewer, drainage, or stormwater detention or retention facilities if the charge of fee does not exceed three times the actual cost to San Antonio River Authority for such tap or connection; or if made to a nontaxable entity for retail or wholesale service, does not exceed the actual costs to San Antonio River Authority for such work and for all facilities that are necessary to provide services to such entity and that are financed or are to be financed in whole or in part by tax-supported or revenue bonds of San Antonio River Authority; or is made by San Antonio River Authority for retail or wholesale service on land that at the time of platting was not being provided with water, wastewater, drainage, or storm water detention or retention service by San Antonio River Authority.

Connection Fees for the San Antonio River Authority Wastewater System are hereby established in the following multiples of one (1) Equivalent Dwelling Unit (EDU). One (1) EDU is 200 gallons per day for each single family residential dwelling unit. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit (EDU) by the appropriate multiplier from Table 1 (Impact and Connection Fee Multipliers). Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

<b>Wastewater Treatment Plan Description</b>	<b>Connection Fee per EDU</b>
SARA Wastewater System – Martinez I and II	\$2,150
SARA Wastewater System - Martinez III and Graytown (Martinez IV)	\$3,250
Highway 181	\$2,150
Salatrillo Wholesale System	\$1,350
Salatrillo Retail System	\$1,350

- b. "Impact Fee", as described by 30 TAC 293.171(1), means a charge or assessment imposed by San Antonio River Authority against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility

expansions necessitated by and attributable to the new development, and does not include any fee or charge that is a Connection Fee.

Impact Fees authorized by the Texas Commission on Environmental Quality for the San Antonio River Authority Salatrillo System are hereby established in the following multiples of one (1) Equivalent Dwelling Unit. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit by the appropriate multiplier from Table 1 (Impact and Connection Fee Multipliers). Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee (impact fee) consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

Wastewater Treatment Plan Description	Impact Fee per EDU
SARA Wastewater System – Martinez I and II	\$2,150
SARA Wastewater System - Martinez III and Graytown (Martinez IV)	N/A
Highway 181	N/A
Salatrillo Wholesale System	\$1,350
Salatrillo Retail System	\$1,350

Table 1. Impact and Connection Fee Multipliers			
Single family residence			
1.00			
Swimming pool			
0.20			
Multi-family residential, including townhouses, condominiums, duplexes, etc. (per dwelling unit)			
1.00			
Apartments			
0.60			
Hotels/motels with cooking facilities in room (per dwelling unit)			
0.60			
Hotels/motels without cooking facilities in room (per dwelling unit)			
0.33			
Trailer/mobile home parks (per trailer lot/space)			
1.00			
Camper campgrounds (per camper site)			
0.33			
Hospital (per design bed)			
0.66			
Nursing/rest home (per design bed)			
0.33			
School with showers (per design student)			
0.066			
School without showers (per design student)			
0.05			
Diameter of Service Line (commercial connections) – Multiplier			
	4"	6"	8"
Service station	1X	2X	4X

Swimming pool (commercial)	1X	2X	4X
Office bldg. retail & convenience stores	1X	2X	4X
Bowling alley	1X	2X	4X
Theater, drive-in theater	1X	2X	4X
Factory, industry – see also paragraph 1(b) hereof	1X	2X	4X
Spectator stadium	1X	2X	4X
Church	1X	2X	4X
Restaurant	2X	4X	8X

2. Policy for Payment of Connection and Impact Fees:

- (a) The Customer shall certify to the San Antonio River Authority, on forms to be provided by the River Authority, the connection or connections that it desires to make to its local wastewater facilities. Simultaneously, the Customer shall tender to the River Authority its payment of all fees for which certification has been made.
- (b) Upon acceptance of the Customer's certificate and payment, the River Authority shall issue its permit or permits to the Customer authorizing the making of the physical connection or connections.

3. Remedy for Failure to Pay Connection and Impact Fees:

In the event that the Customer should permit a service line of any classification to be connected to its local wastewater facilities without payment of the appropriate fee(s) to the River Authority, the River Authority shall be entitled to liquidated damages in the amount of One Hundred Dollars (\$100) for any such unpaid fee in addition to the appropriate fee itself.

4. Balance Due Policy:

Full payment of appropriate fees shall be made for all connections for which application is made on or after the date of execution of the agreement. Where only a portion of the wastewater fee has previously been paid to secure conditional connection approval, the balance due shall be the difference between the amount paid and the fee in effect at the time the balance is paid.

5. Industrial Connection Fee and Service Charges:

The provisions of SAN ANTONIO RIVER AUTHORITY Ordinance No. O-805, passed and approved May 15, 1985, which is by reference included herein and made a part hereof, shall govern all aspects of industrial wastes discharged to the San Antonio River Authority Martinez - Salatrillo Creeks Sewage Transportation and Treatment System, specifically

including fees and charges therefore. It is understood and agreed by the parties that when governing rules, regulations, orders, ordinances or other such requirements by the wholesale Customers are more stringent with respect to such industrial wastes, such wholesale Customer requirements shall prevail.

<b>Industrial Connection Fee and Service Charges</b>	
Permit Fee – fee charged for each completed application for an industrial sewer connection.	\$25
Sampling Fee – fee charged to the permit holder for each on-site visit conducted by SARA personnel for the purpose of gathering samples, in accordance with Section 6.4 of the Industrial Waste Ordinance.	\$25
Analysis Fee – fee charged to permit holder in cases where sample analysis requirements exceed the testing capabilities of SARA's laboratory (e.g. heavy metals content). SARA will arrange for samples to be collected by a contract laboratory for analysis.	Cost to SARA
Over-strength Surcharge – One a case-by-case basis, SARA may waive the requirement for pretreatment prior to discharge of over-strength sewage (BOD and/or TSS greater than 200 MG/L) into the wastewater system. To the applicable user such Over-strength Surcharge will be billed quarterly by and payable directly to SARA.	50% of permit holder's monthly retail sewer service charge

6. Regulatory Assessment Fee – The Texas Regulatory Assessment Fee of one-half of one percent as established by Ordinance No. O-955, passed and approved September 18, 1991, is hereby ratified, confirmed and carried forward.

Interlocal Agreement Between  
San Antonio River Authority  
and  
The City of Schertz

Amendment 3



**Attachment A**

THE STATE OF TEXAS     §  
                                     §  
COUNTY OF BEXAR       §

**AMENDMENT NO. 3 TO SEWAGE TRANSPORTATION,  
TREATMENT AND DISPOSAL CONTRACT**

This Amendment No. 3 is made and entered into as of the 17<sup>th</sup> day of May, 2017, by and between the SAN ANTONIO RIVER AUTHORITY (hereinafter called "AUTHORITY"), and its wholesale customer, the CITY OF SCHERTZ, TEXAS (hereinafter called "SCHERTZ").

**W I T N E S S E T H**

WHEREAS, the AUTHORITY has heretofore entered into a contract with SCHERTZ, effective March 24, 2015, providing that the AUTHORITY shall transport, treat and dispose of the wastewater of the above-named wholesale customer; and

WHEREAS, said contract provides that the Wholesale Customer Charge Schedule and the wholesale connection fee and impact fee schedule set out in Exhibit C thereof shall be reviewed annually and adjusted by mutual agreement of the parties in accordance with the terms and provisions of the contract; and

WHEREAS, THE AUTHORITY has developed and SCHERTZ has agreed to adjusted wholesale customer charges for the Fiscal Year beginning July 1, 2017.

NOW, THEREFORE, the parties hereto, in consideration of the mutual benefits, agreements and undertakings hereinafter set forth, with respect to the present long-term contracts between the parties hereby contract and agree that:

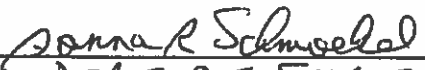
1. Wholesale Customer Charge Schedule, which is attached hereto as Exhibit "A", be and the same hereby is substituted as of July 1, 2017, for Exhibit C contained in the present contracts between the parties.
2. San Antonio River Authority – Schedule of Utilities Operation Fees, as attached hereto as Exhibit "B", be and the same hereby is substituted as of July 1, 2017, for Exhibit C contained in the present contracts between the parties and is hereby ratified, confirmed and carried forward.

IN WITNESS WHEREOF, the parties hereto, acting under the authority of their respective governing bodies, have caused this Amendment No. 3 to be duly executed in several counterparts, each of which shall constitute an original, as of this 17<sup>th</sup> day of May, 2017.

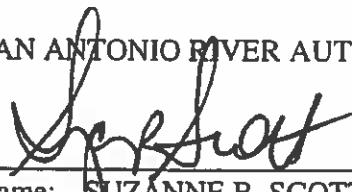
ATTEST

  
Name: STEPHEN T. GRAHAM  
Title: Assistant Secretary

ATTEST:

  
Name: DEPUTY CITY SECRETARY  
Title: DONNASCHMOEDEL

SAN ANTONIO RIVER AUTHORITY

  
Name: SUZANNE B. SCOTT  
Title: General Manager

CITY OF SCHERTZ, TEXAS

  
Name: John C. Kessel  
Title: City Manager

## EXHIBIT A

### Wholesale Customer Charge Schedule

1. Single Family Residential - for each single family residential unit connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$17.71 fixed charge plus \$4.84 per 1,000 gallons of winter average water consumption per month. The charge based on winter average water consumption is waived when the unit is vacant. The winter average water consumption is defined as the computed average of the monthly metered water consumption for three consecutive billing periods that fall wholly within the prior winter's season between November 15 and the following March 15. Where the account has not established a winter average, the Customer's representative winter average shall be used.

The fixed charge includes a payment for any debt of the system plus a computed capital replacement charge used for future system capital improvement projects.

2. All Other Users - for all other users, not single family residential units, connected to the Customer's local wastewater facilities, the Customer shall pay the following:

\$8.49 per 1,000 gallons of metered water consumption each month.

3. The effective date of this schedule shall be July 1, 2017.

## Exhibit B

### San Antonio River Authority – Schedule of Utilities Operation Fees

#### 1. Connection and Impact Fees:

- a. "Connection Fee", as described by Water Code Chapter 49.212, means a charge or fee that is imposed by San Antonio River Authority for construction, installation, or inspection of a tap or connection to San Antonio River Authority water, sanitary sewer, or drainage facilities, including all necessary service lines and meters, for capacity in storm water detention or retention facilities and related storm water conveyances, or for wholesale facilities that serve such water, sanitary sewer, drainage, or stormwater detention or retention facilities if the charge of fee does not exceed three times the actual cost to San Antonio River Authority for such tap or connection; or if made to a nontaxable entity for retail or wholesale service, does not exceed the actual costs to San Antonio River Authority for such work and for all facilities that are necessary to provide services to such entity and that are financed or are to be financed in whole or in part by tax-supported or revenue bonds of San Antonio River Authority; or is made by San Antonio River Authority for retail or wholesale service on land that at the time of platting was not being provided with water, wastewater, drainage, or storm water detention or retention service by San Antonio River Authority.

Connection Fees for the San Antonio River Authority Wastewater System are hereby established in the following multiples of one (1) Equivalent Dwelling Unit (EDU). One (1) EDU is 200 gallons per day for each single family residential dwelling unit. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit (EDU) by the appropriate multiplier from Table 1 (Impact and Connection Fee Multipliers). Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

<u>Wastewater Treatment Plan Description</u>	<u>Connection Fee per EDU</u>
SARA Wastewater System – Martinez I and II	\$2,150
SARA Wastewater System - Martinez III and Graytown (Martinez IV)	\$3,250
Highway 181	\$2,150
Salatrillo Wholesale System	\$1,350
Salatrillo Retail System	\$1,350

- b. "Impact Fee", as described by 30 TAC 293.171(1), means a charge or assessment imposed by San Antonio River Authority against new development in order to generate

revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development, and does not include any fee or charge that is a Connection Fee.

Impact Fees authorized by the Texas Commission on Environmental Quality for the San Antonio River Authority Salatrillo System are hereby established in the following multiples of one (1) Equivalent Dwelling Unit. The required fee shall be computed by multiplying the value of one (1) Equivalent Dwelling Unit by the appropriate multiplier from Table 1 (Impact and Connection Fee Multipliers). Where the list is ambiguous or otherwise fails to properly cover a request for sewer connection, a connection fee (impact fee) consistent with those listed shall be established by mutual agreement of the River Authority and the wholesale Customer, and thereafter disclosed to the applicant.

<b>Wastewater Treatment Plan Description</b>	<b>Impact Fee per EDU</b>
SARA Wastewater System – Martinez I and II	\$2,150
SARA Wastewater System - Martinez III and Graytown (Martinez IV)	N/A
Highway 181	N/A
Salatrillo Wholesale System	\$1,350
Salatrillo Retail System	\$1,350

Table 1. Impact and Connection Fee Multipliers			
Single family residence	1.00		
Swimming pool	0.20		
Multi-family residential, including townhouses, condominiums, duplexes, etc. (per dwelling unit)	1.00		
Apartments	0.60		
Hotels/motels with cooking facilities in room (per dwelling unit)	0.60		
Hotels/motels without cooking facilities in room (per dwelling unit)	0.33		
Trailer/mobile home parks (per trailer lot/space)	1.00		
Camper campgrounds (per camper site)	0.33		
Hospital (per design bed)	0.66		
Nursing/rest home (per design bed)	0.33		
School with showers (per design student)	0.066		
School without showers (per design student)	0.05		
Diameter of Service Line (commercial connections) – Multiplier			
	4"	6"	8"

Service station	1X	2X	4X
Swimming pool (commercial)	1X	2X	4X
Office bldg. retail & convenience stores	1X	2X	4X
Bowling alley	1X	2X	4X
Theater, drive-in theater	1X	2X	4X
Factory, industry – see also paragraph 1(b) hereof	1X	2X	4X
Spectator stadium	1X	2X	4X
Church	1X	2X	4X
Restaurant	2X	4X	8X

2. Policy for Payment of Connection and Impact Fees:

- (a) The Customer shall certify to the San Antonio River Authority, on forms to be provided by the River Authority, the connection or connections that it desires to make to its local wastewater facilities. Simultaneously, the Customer shall tender to the River Authority its payment of all fees for which certification has been made.
- (b) Upon acceptance of the Customer's certificate and payment, the River Authority shall issue its permit or permits to the Customer authorizing the making of the physical connection or connections.

3. Remedy for Failure to Pay Connection and Impact Fees:

In the event that the Customer should permit a service line of any classification to be connected to its local wastewater facilities without payment of the appropriate fee(s) to the River Authority, the River Authority shall be entitled to liquidated damages in the amount of One Hundred Dollars (\$100) for any such unpaid fee in addition to the appropriate fee itself.

4. Balance Due Policy:

Full payment of appropriate fees shall be made for all connections for which application is made on or after the date of execution of the agreement. Where only a portion of the wastewater fee has previously been paid to secure conditional connection approval, the balance due shall be the difference between the amount paid and the fee in effect at the time the balance is paid.

5. Industrial Connection Fee and Service Charges:

The provisions of SAN ANTONIO RIVER AUTHORITY Ordinance No. O-805, passed and approved May 15, 1985, which is by reference included herein and made a part hereof, shall govern all aspects of industrial wastes discharged to the San Antonio River Authority Martinez - Salatrillo Creeks Sewage Transportation and Treatment System, specifically

including fees and charges therefore. It is understood and agreed by the parties that when governing rules, regulations, orders, ordinances or other such requirements by the wholesale Customers are more stringent with respect to such industrial wastes, such wholesale Customer requirements shall prevail.

<b>Industrial Connection Fee and Service Charges</b>	
Permit Fee – fee charged for each completed application for an industrial sewer connection.	\$25
Sampling Fee – fee charged to the permit holder for each on-site visit conducted by SARA personnel for the purpose of gathering samples, in accordance with Section 6.4 of the Industrial Waste Ordinance.	\$25
Analysis Fee – fee charged to permit holder in cases where sample analysis requirements exceed the testing capabilities of SARA's laboratory (e.g. heavy metals content). SARA will arrange for samples to be collected by a contract laboratory for analysis.	Cost to SARA
Over-strength Surcharge – One a case-by-case basis, SARA may waive the requirement for pretreatment prior to discharge of over-strength sewage (BOD and/or TSS greater than 200 MG/L) into the wastewater system. To the applicable user such Over-strength Surcharge will be billed quarterly by and payable directly to SARA.	50% of permit holder's monthly retail sewer service charge

6. Regulatory Assessment Fee – The Texas Regulatory Assessment Fee of one-half of one percent as established by Ordinance No. O-955, passed and approved September 18, 1991, is hereby ratified, confirmed and carried forward.

ORDINANCE NO. O-1439

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY AUTHORIZING AND DIRECTING THE GENERAL MANAGER TO EXECUTE AND THE ASSISTANT SECRETARY TO ATTEST, RESPECTIVELY, AMENDMENT NO. 3 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT WITH THE CITY OF SCHERTZ

Preamble

WHEREAS, the SAN ANTONIO RIVER AUTHORITY has entered into a SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT, dated as of March 24, 2015, with the City of SCHERTZ for the purpose of providing wastewater treatment services (the "Contract"); and

WHEREAS, the SAN ANTONIO RIVER AUTHORITY has developed and SCHERTZ has agreed to adjusted wholesale customer charges under the Contract beginning July 1, 2017; and

WHEREAS, a copy of AMENDMENT NO. 3 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT is attached hereto as Attachment "A".

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY:

That the General Manager and the Assistant Secretary be and the same hereby are authorized and directed to execute and attest, respectively, AMENDMENT NO. 3 TO SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL CONTRACT, substantially in the form as attached hereto as Attachment "A".

PASSED AND APPROVED this 17<sup>th</sup> day of May, 2017.

  
\_\_\_\_\_  
MICHAEL W. LACKEY P.E., Chairman

ATTEST:

  
\_\_\_\_\_  
HECTOR R. MORALES, Secretary

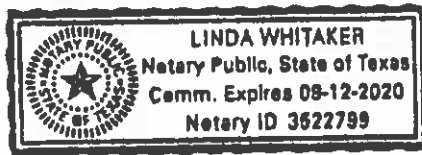


ACKNOWLEDGEMENT OF CHAIRMAN

STATE OF TEXAS       §  
                                  §  
COUNTY OF BEXAR     §

BEFORE ME, the undersigned authority on this day personally appeared MICHAEL LACKEY, Chairman of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY, a political subdivision of the State of Texas known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and deed of said political subdivision.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 17<sup>th</sup> day of May, 2017.



*Linda Kay Whitaker*  
LINDA KAY WHITAKER, Notary Public  
In and for the State of Texas  
My commission expires: 9/12/2020

CERTIFICATE OF SECRETARY

SAN ANTONIO RIVER AUTHORITY

§

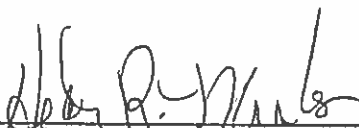
SAN ANTONIO, BEXAR COUNTY, TEXAS

§

§

I hereby certify the above and foregoing to be a duplicate original of Ordinance No. O-1439 of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY as passed and approved by the members of said Board at a regular meeting of the Board of Directors of said AUTHORITY held on May 17, 2017, in San Antonio, Bexar County, Texas, at which a quorum was present, as shown by the Minutes of said meeting.

IN TESTIMONY WHEREOF, witness my hand and the official seal of the SAN ANTONIO RIVER AUTHORITY on this the 17<sup>th</sup> day of May, A.D., 2017, in San Antonio, Bexar County, Texas.

  
\_\_\_\_\_  
HECTOR R. MORALES, Secretary

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 16

Agreement with Green Valley SUD (CCN Facility)

Reference: Domestic Technical Report 1.1

Section 1 B2

STATE OF TEXAS	§	INTERLOCAL AGREEMENT BETWEEN SAN ANTONIO RIVER AUTHORITY AND GREEN VALLEY SPECIAL UTILITY DISTRICT FOR SEWER OUTFALL CONSTRUCTION WITHIN GVSUD SANITARY SEWER CCN
	§	
COUNTY OF BEXAR	§	

---

This Interlocal Agreement for Sewer Outfall Construction (hereinafter referred to as "Agreement") is entered into by and between the San Antonio River Authority, a conservation and reclamation district (hereinafter referred to as "River Authority"), and Green Valley Special Utility District, a Texas water district (hereinafter referred to as "District"), each of which may also be referred to herein individually as a "Party" or collectively as the "Parties".

WHEREAS, River Authority owns and operates the San Antonio River Authority Wastewater Treatment System (the "System"), which provides sewage transportation, treatment and disposal; and

WHEREAS, District is responsible for sewage collection systems within its Certificate of Convenience and Necessity ("CCN") service area; and

WHEREAS, District desires to contract with River Authority to construct a sanitary sewer outfall line within the CCN for servicing current customers and future customers which will provide sewage transportation, treatment and disposal for District; and

WHEREAS, the developer ("Developer") of property within the CCN desires to have a sewer outfall line ("Line") constructed so as to benefit his property and is willing to make a contribution to the cost of construction ("Developer Contribution") for the Line; and

WHEREAS, District will pay the actual cost of the said line minus the Developer's Contribution for this Line extension; and

WHEREAS, District will be the owner of the sanitary sewer outfall line and

WHEREAS, SARA will construct the Sewer Outfall Line under an existing design build contract; and

WHEREAS, the Parties, in the interest of public convenience and pursuant to the provisions of Chapter 791, as amended, Texas Government Code ("Chapter 791" ) have determined that the public interest would best be served by River Authority providing construction administration for the Line;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the undersigned Parties agree to the terms and conditions outlined below.

#### **I. AUTHORITY**

This Agreement is entered into by the Parties pursuant to the authority granted each of them by the applicable general and special laws of the State of Texas, and in compliance with the provisions of Chapter 791. This Agreement is intended to further the purpose of Chapter 791, which is to increase the efficiency and effectiveness of local governments.

#### **II. DISTRICT'S AUTHORIZATION AND OBLIGATIONS**

District expressly authorizes the construction of the sewer outfall line by the River Authority within its CCN. District agrees that it shall pay to River Authority one lump sum of the actual cost for the sewer outfall line minus the Developer's Contribution under the provisions of this Agreement within thirty (30) days of receipt of invoice by the River Authority.

#### **III. RIVER AUTHORITY'S OBLIGATIONS**

River Authority agrees that it shall construct the sanitary sewer outfall line to transport, treat and dispose of sewage of the District delivered at points and in quantities mutually agreed to by the Parties.

#### **IV. TITLE TO WATER AND SEWAGE**

Title to all water and sewage put into the System under this Agreement shall pass to the River Authority at the points of entry.

## **V. EASEMENTS**

District agrees to the extent physically feasible, reasonably practicable, as determined by District, and legally authorized that the River Authority may use without compensation the easements, rights-of-way or property held by District, and described on the attached **Exhibit A**, so that the Line may be appropriately constructed.

## **VI. FORCE MAJEURE**

If for any reason of "force majeure" either of the Parties hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement, other than the obligation of the District to make the payment required under the terms of Article II hereof, then if such Party shall give notice and full particulars of such reasons in writing to the other Party within a reasonable time after the occurrence of the event, or cause relied on, the obligation of the Party giving such notice, so far as it is affected by such "force majeure" shall be suspended during the continuance of the inability then claimed, but for no longer period; and such Party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term "force majeure" as employed herein shall mean acts of god, strikes, lock-outs or other industrial disturbances, acts of public enemy, orders or actions of any kind of the Government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightening, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraints of Government and people, civil disturbances, explosions, breakage or accident to dams, machinery, pipelines, or canals or structures, or on account of any other cause not reasonably within the control of the Party claiming such inability. It is understood and agreed that the settlement of strikes and lock-outs shall be entirely within the discretion of the Party having the difficulty, and that the above requirement that any "force majeure" shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lock-outs by acceding to the demands of the opposing parties when such settlement is unfavorable to it in the judgment of the Party having difficulty. No damages shall be recoverable from the River Authority by reason of the causes above mentioned.

## **VII. AUDIT**

Each Party reserves the right to conduct, or cause to be conducted, at its own expense, an audit of all funds received or dispersed under this Agreement at any and all times deemed necessary by that Party. Each Party's staff, a certified public accounting firm, or other auditors as designated by that Party, may perform such audit(s). Each Party reserves the right to determine the scope of every audit. Each Party agrees to make available to the other Party all books, records, documents and reports with respect to matters covered by this Agreement.

## **VIII. INSURANCE**

Each Party shall name the other Party as an additional insured under its current respective insurance policy or intergovernmental risk management fund coverage, maintaining the additional insured requirement throughout the term of this Agreement, and furnish certificates of coverage to the other Party upon request, including, a certificate of insurance coverage indicating the commercial general liability policy data and the additional insured endorsement or verification of intergovernmental risk management fund coverage.

## **IX. ASSIGNMENT**

No Party may assign or transfer its interest in this Agreement or any portion thereof without the written consent of the governing body of the other Party. Any attempt to transfer, pledge or otherwise assign shall be void ab initio and shall confer no rights upon any third person or party.

## **X. NOTICE**

For purposes of this Agreement, all notices among the Parties shall be deemed sufficient if in writing and mailed certified mail, return receipt requested, postage prepaid, to the addresses set forth below:

### **DISTRICT:**

General Manager  
Green Valley Special Utility District  
P. O. Box 99  
Marion, TX 78154 P. O. Box 839980

### **RIVER AUTHORITY:**

General Manager  
San Antonio River Authority  
P.O. Box 829980  
San Antonio, Texas 78283-9980

Notices of changes of address must be made in writing delivered to the last known address of each other Party within five (5) business days of the change.

## **XI. GOVERNING LAW AND VENUE**

The Parties agree that this Agreement shall be governed by and construed in accordance with the laws of the State of Texas. Any action or proceeding brought to enforce the terms of this Agreement or adjudicate any dispute arising out of this Agreement shall be brought in a court of competent jurisdiction in Bexar County, Texas.

## **XII. GENDER AND TENSE**

Words of either gender used in this Agreement shall be held and construed to include the other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires.

## **XIII. AUTHORITY**

The signers of this Agreement represent that they have full authority to execute this Agreement on behalf of District and River Authority, respectively, and that the respective governing bodies of District and River Authority, have authorized the execution of this Agreement.



#### **XIV. INDEPENDENT CONTRACTOR**

It is expressly agreed and understood that each Party is and shall be deemed to be an independent contractor, responsible for its respective acts or omissions and that the other Party shall be in no way responsible therefore, and that no Party hereto has authority to bind the other Party nor to hold out to third parties that it has the authority to bind the other Party. Nothing herein contained shall be deemed or construed to create the relationship of employer-employee, principal-agent, an association, joint venture, partners, or partnership or impose a partnership duty, obligation or liability among the Parties. No third party beneficiaries are created by this Agreement. This Agreement is not intended to and shall not create any rights in or confer any benefits upon any other person other than the Parties.

#### **XV. SEVERABILITY**

If any clause or provision of this Agreement is held invalid, illegal or unenforceable under present or future federal, state or local laws, then and in that event it is the intention of the Parties that such invalidity, illegality or unenforceability shall not affect any other clause or provision hereof and that the remainder of this Agreement shall be construed as if such invalid, illegal or unenforceable clause or provision was never contained herein; it is also the intention of the Parties hereto that in lieu of each clause or provision of this Agreement that is invalid, illegal or unenforceable, thereby added as a part of this Agreement a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provisions as may be possible, to be legal, valid and enforceable.

#### **XVI. DISPUTE RESOLUTION**

If a dispute arises with respect to this Agreement, the Parties shall first negotiate in good faith to resolve the dispute with an appeal to higher internal management, and failing resolution by such means, shall then submit the dispute to a mutually agreeable, non-binding dispute resolution process, before resorting to litigation.

#### **XVII. AMENDMENTS AND MODIFICATIONS**

This Agreement shall be binding upon the Parties and their respective successors and legal representatives and shall inure solely to the benefit of the Parties and their respective successors and legal representatives. Furthermore, no alteration, amendment, or modification of any provision of this Agreement shall be effective unless (1) prior written consent of such alteration, amendment, or modification shall have been obtained from the Parties hereto, and (2) such alteration, amendment, or modification is in writing and signed by the Parties hereto. The Parties may amend this Agreement upon compliance with applicable law.

#### **XVIII. WAIVER**

The failure on the part of either Party herein at any time to require the performance by the other Party, of any way portion of this Agreement, shall not be deemed a waiver of, or in any way affect that Party's rights to enforce such provision, or any other provision. Any waiver by any Party herein of any provision hereof, shall not be taken or held to be a waiver of any other provision hereof, or any other breach hereof.

#### **XIX. NO THIRD PARTY BENEFICIARY**

The Parties are entering into this Agreement solely for the benefit of their own entities and agree that nothing herein shall be construed to confer any right, privilege or benefit on any person or entity other than the Parties hereto.

#### **XX. INCORPORATION OF PROVISIONS REQUIRED BY LAW**

Each provision and clause required by law to be inserted into this Agreement shall be deemed to be included herein, and the Agreement shall be read and enforced as though each were included herein. If through mistake, or otherwise, any such provision is not inserted, or is not correctly inserted,

the Agreement shall be mutually amended to make such proper insertion, on application by either Party.

#### **XXI. CAPTIONS**

The section headings appearing in this Agreement are for convenience of reference only and are not intended, to any extent and for any purpose, to limit or define the text of any section or any subsection hereof.

#### **XXII. INCORPORATION OF RECITALS**

The recitals contained in the preamble hereof are hereby found to be true, and such recitals are hereby made a part of this Agreement for all purposes and are adopted as a part of the judgment and findings of the governing boards of the Parties.

#### **XXIII. INCONSISTENT PROVISIONS**

All ordinances and resolutions, or parts thereof, which are in conflict or inconsistent with any provision of this Agreement are hereby repealed to the extent of such conflict, and the provisions of this Agreement shall be and remain controlling as to the matters provided herein.

#### **XXIV. COMPLIANCE WITH TEXAS OPEN MEETINGS ACT**

It is officially found, determined, and declared that the meeting of the River Authority at which this Agreement is adopted was open to the public and public notice of the time, place, and subject matter of the public business to be considered at such meeting, including this Agreement, was given, all as required by Chapter 551, as amended, Texas Government Code.

**XXV. ENTIRE AGREEMENT**

This Agreement contains the entire agreement between the parties pertaining to the subject matter hereof and fully supersedes all prior agreements and understandings between the parties pertaining to such subject Matter. EXECUTED IN DUPLICATE ORIGINALS, EACH OF WHICH SHALL

HAVE THE FULL FORCE AND EFFECT OF AN ORIGINAL, the 4 day of May, 2017.

**DISTRICT**

**GREEN VALLEY SPECIAL UTILITY  
DISTRICT**

  
President, Board of Directors

**ATTEST:**

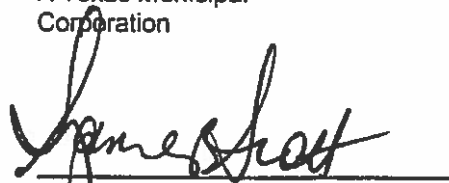
  
Secretary, Board of Directors

**APPROVED AS TO LEGAL FORM:**

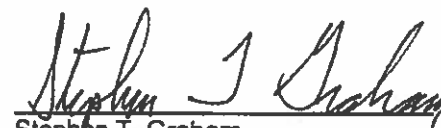
  
Mark H. Zeppa  
Attorney

**RIVER AUTHORITY**

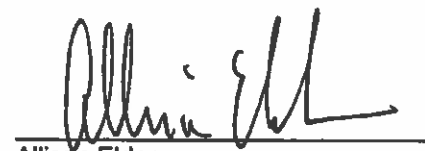
**SAN ANTONIO RIVER AUTHORITY**  
A Texas Municipal  
Corporation

  
Suzanne B. Scott  
General Manager

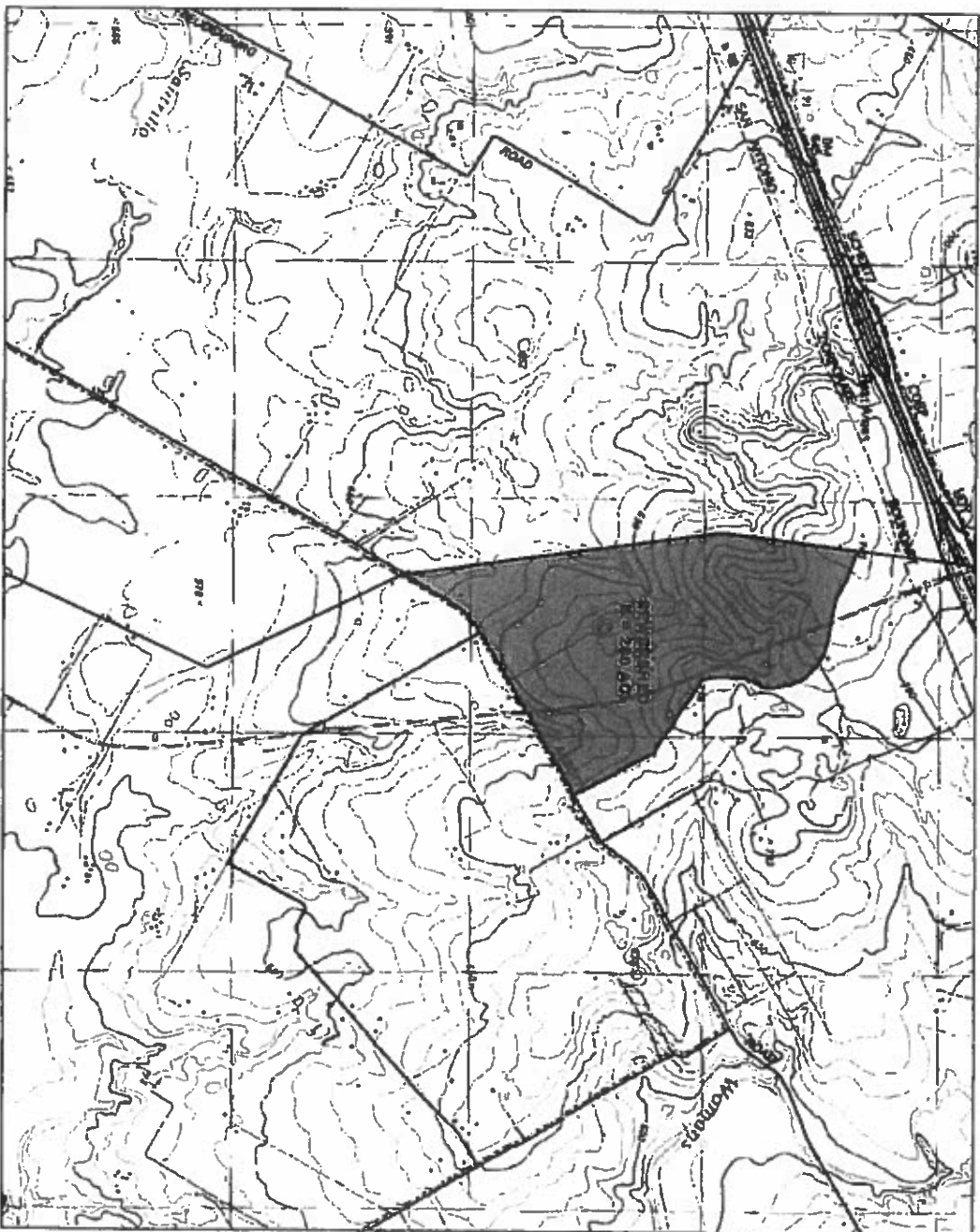
**ATTEST:**

  
Stephen T. Graham  
Assistant Secretary

**APPROVED AS TO LEGAL FORM:**

  
Allison Elder  
Director of Legal Services





**RIVER CITY ENGINEERING**  
 Civil, Environmental and Surveying  
 2001 SOUTH 1 STREET  
 AUSTIN, TEXAS 78704-1947  
 TEL: (512) 444-4400  
 FAX: (512) 444-4401  
 1011 W. COUNTY LINE ROAD, SUITE C  
 NEW BRUNSWICK, TEXAS 77850  
 TEL: (817) 222-3800  
 FAX: (817) 222-3801

DRAWING INFORMATION			
DESIGNED BY:	GW	SCALE:	AS SHOWN
DRAWN BY:	EV	DATE OF SUBMITTAL:	2008
CHECKED BY:	GW	PROJECT NO.:	
INTERVIEWED BY:	GW	FIELD NO.:	
FILE NAME:		FILE NO.:	
REVISIONS:		REV. NO.:	

GREEN VALLEY SUD  
 WASTEWATER MASTER PLAN  
 SEWERSHED  
 AREAS

PRELIMINARY FOR REVIEW ONLY  
 THESE DOCUMENTS ARE FOR DESIGN REVIEW ONLY AND  
 NOT INTENDED FOR CONSTRUCTION, BIDDING OR  
 PERMITTING PURPOSES. THEY WERE PREPARED BY OR  
 UNDER THE SUPERVISION OF  
 CARRIE D. MONTGOMERY, JR.  
 TYPE OR PRINT NAME  
 11498  
 PE#  
 80118  
 DATE

# EXHIBIT A

STATE OF TEXAS	§	INTERLOCAL AGREEMENT BETWEEN SAN ANTONIO RIVER AUTHORITY AND GREEN VALLEY SPECIAL UTILITY DISTRICT FOR SEWAGE TRANSPORTATION, TREATMENT AND DISPOSAL
	§	
COUNTY OF BEXAR	§	

---

This Interlocal Agreement (hereinafter referred to as "Agreement") is entered into by and between the San Antonio River Authority, a conservation and reclamation district (hereinafter referred to as "River Authority"), and Green Valley Special Utility District (GVSUD), a Texas water district (hereinafter referred to as "District"), each of which may also be referred to herein individually as a "Party" or collectively as the "Parties".

WHEREAS, River Authority owns and operates the San Antonio River Authority Wastewater Treatment System (the "System"), which provides sewage transportation, treatment and disposal;

WHEREAS, the District is certificated to provide sewer utility services and will own and operate its sewage collection system within its Certificate of Convenience and Necessity ("CCN") service area;

WHEREAS, the District desires to contract with River Authority to provide retail sewage transportation, treatment and disposal for City;

WHEREAS, the Parties, in the interest of public convenience and pursuant to the provisions of Chapter 791, as amended, Texas Government Code ("Chapter 791") have determined that the public interest would best be served by River Authority providing sewage transportation, treatment and disposal to promote efficiency and effectiveness and to protect the environment, public health, safety and welfare;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the undersigned Parties agree to the terms and conditions outlined below.

## **I. AUTHORITY**

This Agreement is entered into by the Parties pursuant to the authority granted each of them by the applicable general and special laws of the State of Texas, and in compliance with the provisions of Chapter 791. This Agreement is intended to further the purpose of Chapter 791, which is to increase the efficiency and effectiveness of local governments.

## **II. DISTRICT'S OBLIGATIONS**

District agrees that it shall (i) timely pay to River Authority the full amount it is required to pay under the provisions of this Agreement, (ii) plan, construct, maintain and finance the local sewage facilities owned, operated and maintained by District, except where such services are being provided by River Authority under the terms of this Agreement, (iii) set rates to its individual customers for sewage service adequate to meet its obligations, including those hereunder, (iv) bill and collect for its local sewer services, (v) generate and distribute any and all communications to District customers related to District Utility services, (vi) set and enforce plumbing codes and construction standards for its system in accordance with River Authority standards and based on appropriate TCEQ rules, and (vii) allow SARA to construct sewer lines within the GVSUD's CCN.

## **III. RIVER AUTHORITY'S OBLIGATIONS**

River Authority agrees that it shall (i) transport, treat and dispose of sewage of the District delivered at points and in quantities mutually agreed to by the Parties, (ii) cooperate with and assist District in the performance of the obligations assigned to the District under this Agreement, (iii) operate the System efficiently and prudently in accordance with the accepted standards of its governmental function. River Authority shall be obligated to transport, treat and dispose of up to 360,000 gallons per day of sewage from the District, and (iv) operate and maintain the system within GVSUD's CCN until a mutually agreed upon transition to wholesale service by addendum to this Agreement.



#### **IV. PROCEDURES TO ENSURE QUALITY**

Sewage will be accepted into the System at points of entry mutually agreed upon in writing by District and River Authority. The proposed points of entry are shown on **Exhibit A**. Additional or different points of entry may be agreed to by the Parties in the future, additional points of entry shall be deemed to be an addendum to this Agreement.

District agrees to limit its discharges into the System to those that are defined as admissible discharges under River Authority's industrial waste control ordinance No. 0- 805 passed and approved May 15, 1985 and to curtail the discharge of any wastes that have the characteristics of prohibited discharges under said ordinance, and all future amendments or modifications to said ordinance. A copy of the current version of said ordinance is attached as **Exhibit B**.

District shall have full responsibility in connection with all wastes handled by its local sewage facilities. River Authority shall have full responsibility in connection with all wastes handled by the System, including District sewage accepted by the System at mutually agreed upon entry points.

#### **V. CHARGES**

District shall make payments to River Authority for (i) sewage transportation, treatment and disposal (ii) fees included in the River Authority's Schedule of Utilities Operation Fees, including extra strength sewage treatment, (iii) industrial cost recovery, (iv) connection fees and (v) for any other expenditures which are the responsibility of District under this Agreement, including but not limited to, the operation and maintenance of District sewer lines, as mutually agreed upon. The initial charges to District for sewage transportation, treatment and disposal; the charges for extra strength wastes; the industrial cost recovery charges; and the connection fees to be charged to District shall be based on Customer Charge Schedule and Schedule of Utilities Operation Fees.

River Authority will set the initial rates through ordinance by July 1, 2017 and adjust its charges to the District for sewage transportation, treatment, and disposal annually, on July 1 of each calendar year. On or before June 1 of each year, River Authority will give written notice to District of the charges

for the following year. River Authority shall not be responsible to District or its customers for any issues related to customer billings.

Within thirty days of the close of each calendar month, a statement of connections, listing of connections served by address, and the payments called for in this Agreement shall be forwarded to River Authority by District. River Authority shall have the right to verify and audit reported connections. Delinquent payments to River Authority shall incur a penalty based on State of Texas Prompt Payment Act.

#### **VI. TERM**

The term of this Agreement shall be for twenty (20) years commencing on the date of execution by both Parties of this Agreement. The obligation of District to promptly pay all prescribed charges shall commence upon the execution of this Agreement and shall survive the termination of this Agreement. At the end of such term, the Parties may mutually to extend the term of this Agreement.

#### **VII. TITLE TO WATER AND SEWAGE**

Title to all water and sewage put into the System under this Agreement shall pass to the River Authority at the points of entry.

#### **VIII. EASEMENTS**

District agrees to the extent physically feasible, reasonably practicable, as determined by District, and legally authorized that the River Authority may use without compensation the easements, rights-of-way or property held by District, and described on the attached Exhibit C, so that the River Authority's facilities and required equipment may be appropriately provided.

## **IX. FORCE MAJEURE**

If for any reason of "force majeure" either of the Parties hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement, other than the obligation of the District to make the payments required under the terms of Article IV hereof, then if such Party shall give notice and full particulars of such reasons in writing to the other Party within a reasonable time after the occurrence of the event, or cause relied on, the obligation of the Party giving such notice, so far as it is affected by such "force majeure" shall be suspended during the continuance of the inability then claimed, but for no longer period; and such Party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term "force majeure" as employed herein shall mean acts of god, strikes, lock-outs or other industrial disturbances, acts of public enemy, orders or actions of any kind of the Government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightening, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraints of Government and people, civil disturbances, explosions, breakage or accident to dams, machinery, pipelines, or canals or structures, or on account of any other cause not reasonably within the control of the Party claiming such inability. It is understood and agreed that the settlement of strikes and lock-outs shall be entirely within the discretion of the Party having the difficulty, and that the above requirement that any "force majeure" shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lock-outs by acceding to the demands of the opposing parties when such settlement is unfavorable to it in the judgment of the Party having difficulty. No damages shall be recoverable from the River Authority by reason of the causes above mentioned.

## **X. AUDIT**

Each Party reserves the right to conduct, or cause to be conducted, at its own expense, an audit of all funds received or dispersed under this Agreement at any and all times deemed necessary by that Party. Each Party's staff, a certified public accounting firm, or other auditors as designated by that Party, may perform such audit(s). Each Party reserves the right to determine the scope of every

audit. Each Party agrees to make available to the other Party all books, records, documents and reports with respect to matters covered by this Agreement.

## **XI. INSURANCE**

Each Party shall name the other Party as an additional insured under its current respective insurance policy or intergovernmental risk management fund coverage, maintaining the additional insured requirement throughout the term of this Agreement, and furnish certificates of coverage to the other Party upon request, including, a certificate of insurance coverage indicating the commercial general liability policy data and the additional insured endorsement or verification of intergovernmental risk management fund coverage.

## **XII. ASSIGNMENT**

No Party may assign or transfer its interest in this Agreement or any portion thereof without the written consent of the governing body of the other Party. Any attempt to transfer, pledge or otherwise assign shall be void ab initio and shall confer no rights upon any third person or party.

## **XIII. NOTICE**

For purposes of this Agreement, all notices among the Parties shall be deemed sufficient if in writing and mailed certified mail, return receipt requested, postage prepaid, to the addresses set forth below:

### **DISTRICT:**

General Manager  
Green Valley Special Utility District  
P. O. Box 99  
Marion, TX 78154

### **RIVER AUTHORITY:**

General Manager  
San Antonio River Authority  
P.O. Box 839980  
San Antonio, Texas 78283-9980

Notices of changes of address must be made in writing delivered to the last known address of each other Party within five (5) business days of the change.

#### **XIV. GOVERNING LAW AND VENUE**

The Parties agree that this Agreement shall be governed by and construed in accordance with the laws of the State of Texas. Any action or proceeding brought to enforce the terms of this Agreement or adjudicate any dispute arising out of this Agreement shall be brought in a court of competent jurisdiction in Bexar County, Texas.

#### **XV. GENDER AND TENSE**

Words of either gender used in this Agreement shall be held and construed to include the other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires.

#### **XVI. AUTHORITY**

The signers of this Agreement represent that they have full authority to execute this Agreement on behalf of District and River Authority, respectively, and that the respective governing bodies of District and River Authority, have authorized the execution of this Agreement.

#### **XVII. INDEPENDENT CONTRACTOR**

It is expressly agreed and understood that each Party is and shall be deemed to be an independent contractor, responsible for its respective acts or omissions and that the other Party shall be in no way responsible therefore, and that no Party hereto has authority to bind the other Party nor to hold out to third parties that it has the authority to bind the other Party. Nothing herein contained shall be deemed or construed to create the relationship of employer-employee, principal-agent, an association, joint venture, partners, or partnership or impose a partnership duty, obligation or liability among the Parties. No third party beneficiaries are created by this Agreement. This Agreement is not

intended to and shall not create any rights in or confer any benefits upon any other person other than the Parties.

#### **XVIII. SEVERABILITY**

If any clause or provision of this Agreement is held invalid, illegal or unenforceable under present or future federal, state or local laws, then and in that event it is the intention of the Parties that such invalidity, illegality or unenforceability shall not affect any other clause or provision hereof and that the remainder of this Agreement shall be construed as if such invalid, illegal or unenforceable clause or provision was never contained herein; it is also the intention of the Parties hereto that in lieu of each clause or provision of this Agreement that is invalid, illegal or unenforceable, thereby added as a part of this Agreement a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provisions as may be possible, to be legal, valid and enforceable.

#### **XIX. DISPUTE RESOLUTION**

If a dispute arises with respect to this Agreement, the Parties shall first negotiate in good faith to resolve the dispute with an appeal to higher internal management, and failing resolution by such means, shall then submit the dispute to a mutually agreeable, non-binding dispute resolution process, before resorting to litigation.

#### **XX. AMENDMENTS AND MODIFICATIONS**

This Agreement shall be binding upon the Parties and their respective successors and legal representatives and shall inure solely to the benefit of the Parties and their respective successors and legal representatives. Furthermore, no alteration, amendment, or modification of any provision of this Agreement shall be effective unless (1) prior written consent of such alteration, amendment, or modification shall have been obtained from the Parties hereto, and (2) such alteration, amendment, or modification is in writing and signed by the Parties hereto. The Parties may amend this Agreement upon compliance with applicable law.

#### **XXI. WAIVER**

The failure on the part of either Party herein at any time to require the performance by the other Party, of any way portion of this Agreement, shall not be deemed a waiver of, or in any way affect that Party's rights to enforce such provision, or any other provision. Any waiver by any Party herein of any provision hereof, shall not be taken or held to be a waiver of any other provision hereof, or any other breach hereof.

#### **XXII. NO THIRD PARTY BENEFICIARY**

The Parties are entering into this Agreement solely for the benefit of their own entities and agree that nothing herein shall be construed to confer any right, privilege or benefit on any person or entity other than the Parties hereto.

#### **XXIII. INCORPORATION OF PROVISIONS REQUIRED BY LAW**

Each provision and clause required by law to be inserted into this Agreement shall be deemed to be included herein, and the Agreement shall be read and enforced as though each were included herein. If through mistake, or otherwise, any such provision is not inserted, or is not correctly inserted, the Agreement shall be mutually amended to make such proper insertion, on application by either Party.

#### **XXIV. CAPTIONS**

The section headings appearing in this Agreement are for convenience of reference only and are not intended, to any extent and for any purpose, to limit or define the text of any section or any subsection hereof.

#### **XXV. INCORPORATION OF RECITALS**

The recitals contained in the preamble hereof are hereby found to be true, and such recitals are hereby made a part of this Agreement for all purposes and are adopted as a part of the judgment and findings of the governing boards of the Parties.

#### **XXVI. INCONSISTENT PROVISIONS**

All ordinances and resolutions, or parts thereof, which are in conflict or inconsistent with any provision of this Agreement are hereby repealed to the extent of such conflict, and the provisions of this Agreement shall be and remain controlling as to the matters provided herein.

#### **XXVII. COMPLIANCE WITH TEXAS OPEN MEETINGS ACT**

It is officially found, determined, and declared that the meeting of the River Authority at which this Agreement is adopted was open to the public and public notice of the time, place, and subject matter of the public business to be considered at such meeting, including this Agreement, was given, all as required by Chapter 551, as amended, Texas Government Code.

#### **XXVIII. ENTIRE AGREEMENT**

This Agreement contains the entire agreement between the parties pertaining to the subject matter hereof and fully supersedes all prior agreements and understandings between the parties pertaining to such subject matter. EXECUTED IN DUPLICATE ORIGINALS, EACH OF WHICH SHALL

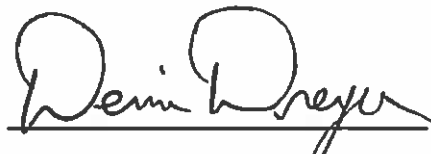
HAVE THE FULL FORCE AND EFFECT OF AN ORIGINAL, the 4 day of May, 2017.

*(Signatures on following page)*



**DISTRICT**

**GREEN VALLEY SPECIAL UTILITY  
DISTRICT**



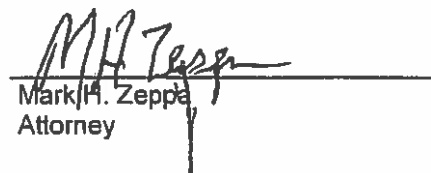
President, Board of Directors

**ATTEST:**



Secretary, Board of Directors

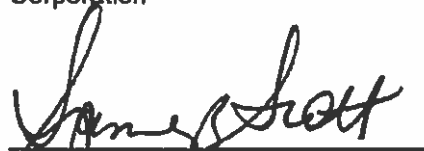
**APPROVED AS TO LEGAL FORM:**



Mark H. Zeppa  
Attorney

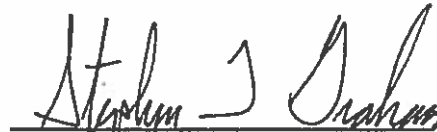
**RIVER AUTHORITY**

**SAN ANTONIO RIVER AUTHORITY**  
A Texas Municipal  
Corporation



Suzanne B. Scott  
General Manager

**ATTEST:**



Stephen T. Graham  
Assistant Secretary

**APPROVED AS TO LEGAL FORM:**



Allison Elder  
Director of Legal Services

----- Sewer Outfall to be constructed in GVSUD

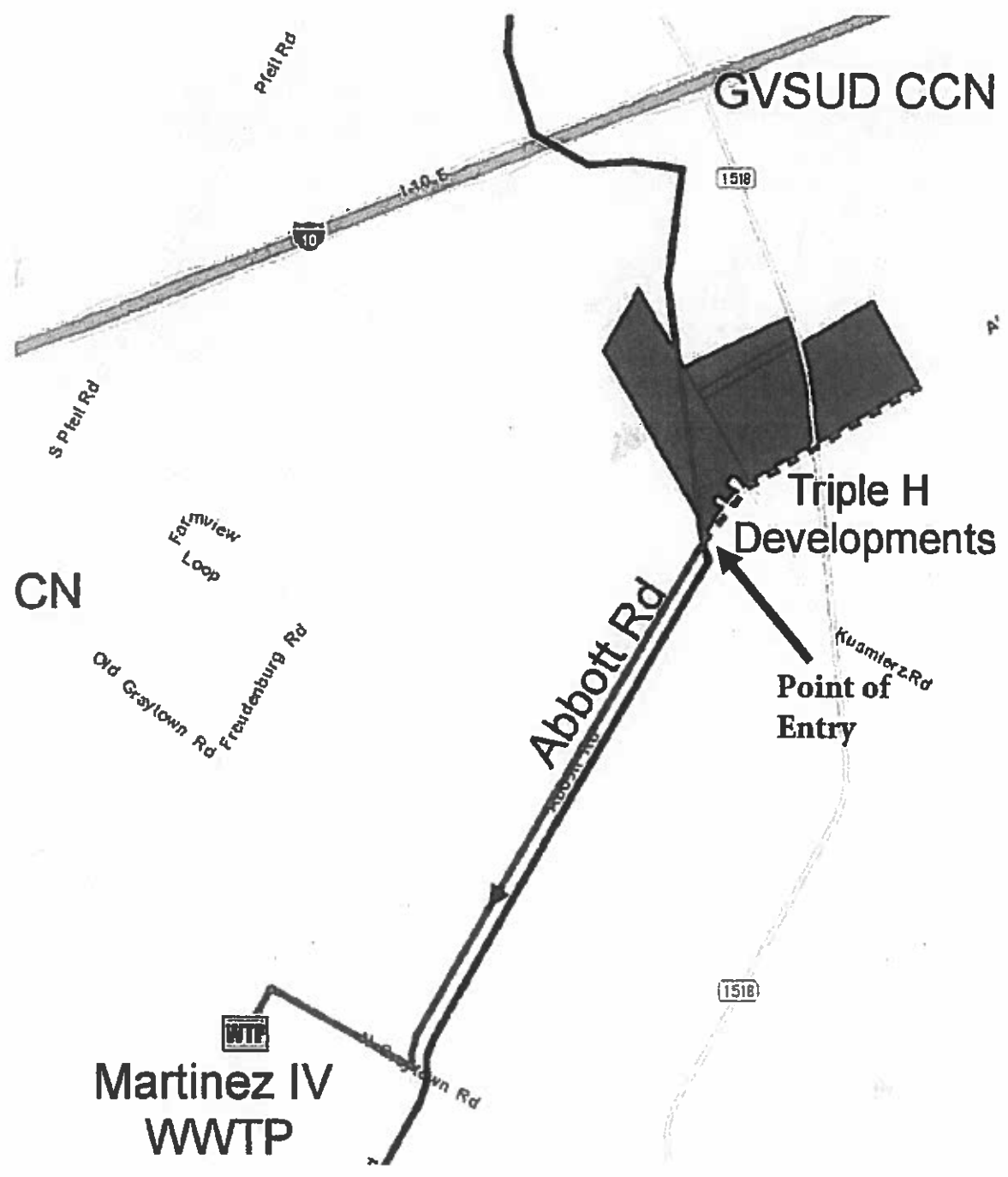


EXHIBIT A

## EXHIBIT B

### ORDINANCE NO. O-805

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY REGULATING THE USE OF BOTH PUBLIC AND PRIVATE SEWERS, DRAINS AND RELATED APPURTENANCES THAT ULTIMATELY DISCHARGE INDUSTRIAL WASTES INTO THE SAN ANTONIO RIVER AUTHORITY MARTINEZ-SALATRILLO CREEKS SEWAGE TRANSPORTATION AND TREATMENT SYSTEM, PROMULGATING STANDARD PROCEDURES AND REGULATIONS FOR COMPLIANCE HEREWITH, ESTABLISHING PENALTIES FOR NONCOMPLIANCE HEREWITH, AND REPEALING ORDINANCE NO. O-553, PASSED AND APPROVED 17 FEBRUARY, 1971.

#### Preamble

WHEREAS, the Federal government has enacted the Federal Water Pollution Control Act of 1972 (PL-92-500), as amended by the Clean Water Act of 1977 (PL 95-217) containing Industrial Wastewater Pretreatment Regulations at 40 CFR, Part 403; and

WHEREAS, the SAN ANTONIO RIVER AUTHORITY (hereinafter referred to as "SARA") operates the Martinez-Salatrillo Creeks Sewage Transportation and Treatment System, and is responsible for meeting effluent limitations established by state and federal permits for the operation of all wastewater treatment plants which are part of said system; and

WHEREAS, in connection with meeting such effluent limitations it is essential that SARA enforce compliance with the above cited statutes in regulating the use of the Martinez-Salatrillo Creeks Sewage Transportation and Treatment System.

NOW, THEREFORE BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE SAN ANTONIO RIVER AUTHORITY:

#### SECTION 1. Repeal of Existing Ordinance.

SAN ANTONIO RIVER AUTHORITY Ordinance No. O-553 passed and approved 17 February 1971 is hereby repealed and superseded effective June 1, 1985.

## SECTION 2. General Provisions.

This Ordinance may be cited as the SAN ANTONIO RIVER AUTHORITY Industrial Waste Ordinance and becomes effective on June 1, 1985. It sets forth uniform requirements to be met by all industrial waste dischargers utilizing the SAN ANTONIO RIVER AUTHORITY Martinez-Salatrillo Sewerage System. This Ordinance is written to enable the said system to comply with and enforce all applicable State and Federal laws pertaining to water quality control.

The objectives of this Ordinance are:

(a) To prevent the introduction of pollutants into the Martinez-Salatrillo Sewerage System in such quantities or qualities that would interfere with the operation of the said System or contaminate the resulting sludge;

(b) To prevent the introduction of pollutants into the Martinez-Salatrillo Sewerage System that may typically pass through the said System either unaffected by the treatment process, or inadequately treated by that process, and resulting in an insufficient quality of effluent discharging into the receiving waters or atmosphere;

(c) To improve the opportunity for reclaiming and recycling wastewater and sludge generated by the Martinez-Salatrillo Sewerage System.

(d) To ensure that there is an equitable distribution of the operation, maintenance and capital related costs of the said System across user classes;

(e) To create a permit system to regulate non-domestic users of the said System;

(f) To enforce the provisions of this Ordinance by requiring self-monitoring and self-reporting from industrial users to supplement periodic investigations made by SARA inspection personnel;

(g) To provide penalties for violations of the regulations established herein.

This Ordinance shall be given full force and effect inside the SARA Martinez-Salatrillo Sewerage System service areas. Additionally, this Ordinance shall apply to those entities being served by the said System. By operation of law, permit conditions, contract, or intermunicipal agreement, industrial wastewater dischargers within individual entities, unincorporated areas, and incorporated areas, are obligated to abide by the provisions of this Ordinance and/or equal or more stringent, non-SARA, entity-enacted, ordinances that govern the discharge of industrial wastewater into sewage collection systems that ultimately connect to SARA's Martinez-Salatrillo Sewerage System. Industrial wastewater discharges within entities, unincorporated areas, and incorporated areas inside the SARA Martinez-Salatrillo Sewerage System service area are obligated to financially support the said System by paying all applicable sewer user charges and fees to the appropriate collection agent for costs associated with the transportation, treatment, operation, maintenance, monitoring, administration and enforcement services provided. Except as otherwise provided for herein, the General Manager of SARA shall be responsible for the implementation, administration and enforcement of the provision of this Ordinance.

### SECTION 3. Definitions.

3.1 Act or 'the Act'. The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et. seq.

3.2 Approval Authority. The Administrator of the EPA or his designated representative.

3.3 Authorized Representative of Industrial User. An authorized representative of an industrial user may be: (1) an executive officer of at least the level of vice president if the industrial user is a corporation; (2) a general partner or proprietor if the industrial user is a partnership or proprietorship, respectively; (3) a duly authorized representative of the individuals designated above. The designated representative of an industrial user shall be named only by official title in the Industrial Wastewater Discharge Permit.

3.4 Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure, five (5) days at 20 degrees centigrade expressed in terms of weight per unit volume (milligrams per liter, mg/l).

3.5 Board of Directors. The twelve elected directors of the San Antonio River Authority, any seven of which, when meeting under the provisions of the Texas Open Meeting Law (Tex. Rev. Civ. Stat. Ann. art. 6252-17), constitute a quorum and may act for SARA.

3.6 Building Sewer. A sewer conveying wastewater from the premises of a User to the POTW.

3.7 Categorical Standards. National Categorical Pretreatment Standards or Pretreatment Standard as set forth in any regulation containing pollutant discharge limits promulgated by the EPA in accordance with the Section 307 (b) and (c) of the Act (33 U.S.C. 1347) which applies to a specific category of Industrial Users.

3.8 "C.O.D." (Chemical Oxygen Demand) means measure of the oxygen consuming capacity of inorganic and organic matter present in the water or wastewater expressed in mg/l as the amount of oxygen consumed from a chemical oxidant in a specific test, but not differentiating between stable and unstable organic matter and thus not necessarily correlating with biochemical oxygen demand;

3.9 Cooling Water. The water discharge from any use thereof to which the only potential pollutant added is heat.

3.10 Compatible Pollutant. Biochemical oxygen demand, suspended solids, PH and fecal coliform bacteria; plus any additional pollutants identified in the publicly-owned treatment work's NPDES permit, where the publicly-owned treatment work (POTW) is designed to treat such pollutants and, in fact, does treat such pollutants to the degree required by the POTW's NPDES permit.

3.11 Control Authority. The term "control authority" shall refer to the "Approval Authority", defined hereinabove; or the Systems Manager if SARA has an approved Pretreatment Program under the provisions of 40 CFR, 403.11.

3.12 Control Manhole. A manhole giving access to a building sewer at some point before the building sewer discharge mixes with other discharges in the public sewer.

3.13 Control Point. Point of access to a course of discharge before the discharge mixes with other discharges in the public sewer.

3.14 Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the State of Texas.

3.15 Environmental Protection Agency, or EPA. The U.S. Environmental Protection Agency, or where appropriate the term may also be used as a designation for the Administrator or other duly authorized official of said agency.

3.16 Garbage. Animal and vegetable wastes and residue from preparation, cooking and dispensing of food; and from the handling, processing, storage and sale of food products and produce.

3.17 Grab Sample. A sample which is taken from a wastewater flow on a one-time basis without regard to the volume of flow and without consideration of the time at which the sample is taken.

3.18 Holding Tank Waste. Any wastes from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, and vacuum pump tank trucks, and other liquid waste hauling mechanisms.

3.19 Incompatible Pollutant. All pollutants other than compatible pollutants as defined in subparagraph 3.8 of this Section.

3.20 Indirect Discharge. The discharge or the introduction of non-domestic pollutants from any source regulated under Section 307 (b) or (c) of the Act (33 U.S.C. 1317) into the POTW (including holding tank waste discharged into the Wastewater System).

3.21 Industrial User. A non-residential source of Indirect Discharge as defined above which does not constitute a 'discharge of pollutants' to a receiving stream under regulations issued pursuant to Section 402, of the Act, (33 U.S.C. 1342).

3.22 Industrial Wastewater. The liquid and waterborne pollutants resulting from processes or operations employed in business, commerce, or industry as defined in the "Standard Industrial Classification Manual, 1972" Office of Management and Budget of the Federal government, as amended and supplemented from time to time. Includes the mixtures of any industrial wastewater pollutants with water or domestic sewage as distinct from normal domestic wastewater.

3.23 Interference. The inhibition or disruption of the POTW transportation and/or treatment processes or operations or that which contributes to a violation of any requirement of the POTW's NPDES Permit. The term includes acts or failures to act that prevent sewage sludge use or disposal by the POTW in accordance with Section 405 of the Act (33 U.S.C. 1345) or any criteria, guidelines or regulations developed pursuant to the Solid Waste Disposal Act (SWDA), the Clean Air Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, or more stringent state criteria (including those contained in any State sludge management plan prepared pursuant to Title IV of SWDA) applicable to the methods of disposal or use employed by the POTW.

3.24 Manager. The General Manager of SARA or his duly authorized representative. The General Manager reports to the Board of Directors of SARA.

3.25 National Prohibitive Discharge Standard or Prohibitive Discharge Standard. Any regulation developed under the authority of 307 (b) of the Act 40 CFR, Section 403.5.

3.26 Natural Outlet. Any outlet into a watercourse, ditch, lake, or other body of surface water or groundwater.

3.27 New Source. Any source, the construction of which is commenced after the publication (in the Federal Register) of proposed standards for that industry, as prescribed in Section 307 (c) of the Act (33 U.S.C.1317), if such regulation is enacted within 120 days after publication in the Federal Register. Where the standard is promulgated later than 120 days after publication in the Federal Register, a new source means any source, the construction of which is commenced after the date of promulgation of the standard.

3.28 National Pollution Discharge Elimination System or NPDES Permit. A permit issued pursuant to Section 402 or the Act (33 U.S.C. 1342).

3.29 Normal Domestic Wastewater. The water-borne wastes normally discharging from the sanitary conveniences of dwellings, including apartment houses, hotels, office buildings, factories and institutions, which are free from storm water and industrial waste. The BOD is not greater than 200 mg/l and suspended solids level is not greater than 200 mg/l.

3.30 Person. Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other



legal entity, or their legal representatives, agents or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.

3.31 pH. The logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in moles per liter of solution.

3.32 Pollution. The human alteration of the chemical, physical, biological, or radiological characteristics of water below certain minimum desirable quality standards.

3.33 Pollutant. Any dredge spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

3.34 Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes, or process changes by other means, except as prohibited by 40 CFR Part 403, Section 403.6 (d).

3.35 Pretreatment Requirements. Any locally adopted substantive or procedural requirement related to industrial wastewater pretreatment that may supplement National Pretreatment Standard requirements imposed upon an industrial user.

3.36 Publicly Owned Treatment Works (POTW). A treatment works as defined by Section 212 of the Act (33 U.S.C. 1292). This definition includes any sewers that convey wastewater to the POTW treatment plant from indirect discharge points. This definition does not include pipes, sewers, sampling points located exclusively on private property, or other conveyances that are physically located anterior to the indirect discharge point.

3.37 POTW Treatment Plant. That portion of the POTW designed to provide wastewater treatment rather than wastewater transportation.

3.38 San Antonio River Authority. A political subdivision of the State of Texas organized by the Texas Legislature under authority of Article XVI Sec. 59 of the Texas Constitution, and codified as Article 8280-119, Revised Civil Statutes of Texas, hereinafter called "SARA".

3.39 Shall. Shall is mandatory: May is permissive.

3.40 Slug. Any discharge of water, wastewater or industrial waste which in concentration of any given constituent or in quantity of flow, exceeds for any period of duration longer than fifteen (15) minutes more than five (5) times the average twenty-four hour concentration or flows during normal operation.

3.41 State. State of Texas.

3.42 Standard Industrial Classification (SIC). A classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972.

3.43 Standard Methods. Shall mean the examination and analytical procedures set forth in the latest edition at the time of analysis of "Standard Methods for the Examination of Water and Wastewater" as prepared by the American Water Works Association. "Standard Methods" shall also mean any approved analytical procedures published by the U.S. EPA in 40 CFR Part 36.

3.44 Storm Water. Any excess flow of water within the Wastewater System resulting from surface runoff from natural forms of precipitation including infiltration and inflow.

3.45 Suspended Solids. The total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or other liquids, which is removable by a laboratory filtration device in accordance with procedures set forth in "Standard Methods for the Examination of Water and Wastewater" expressed in terms of weight per unit volume (mg/l).

3.46 Systems Manager. The person designated by the General Manager of SARA to supervise the operation and maintenance of the publicly owned treatment works and who is charged with certain duties and responsibilities by this Ordinance. Although SARA will normally be represented by the Systems Manager in contacts with users of the POTW, other qualified personnel can be designated as the Systems Manager's duly authorized representative when appropriate.

3.47 Toxic Pollutant. Any pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under the provision of Section 307 (a) of the Act or other Acts.

3.48 Trap. A device designed to skim, settle, or otherwise remove grease, oil, sand, flammable wastes or other harmful substances.

3.49 User. Any person who contributes, causes or permits the contribution of wastewater into SARA's POTW.

3.50 Wastewater. The liquid and water-carried industrial or domestic wastes from dwellings, commercial buildings, industrial facilities and institutions, whether treated or untreated, which is indirectly discharged into, or permitted to enter, the POTW, together with any groundwater, surface water, and storm water that may be present.

3.51 Watercourse. A natural or man-made channel in which a flow of water occurs, either continuously or intermittently.

3.52 State Waters.

(a) The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, lake, and of every bay of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the State is the property of the State.

(b) Water which is imported from any source outside the boundaries of the State for use in the State and which is transported through the beds and banks of any navigable stream within the State or by utilizing any facilities owned or operated by the State is the property of the State.

3.53 Industrial Wastewater Discharge Permit. As set forth in Section 6.2 of this Ordinance.

3.54 Abbreviations. The following abbreviations shall have the designated meanings:

BOD - Biochemical oxygen demand (five day).  
CFR - Code of Federal Regulations.  
COD - Chemical oxygen demand.

EPA - Environmental Protection Agency.  
l - Liter  
LEL - Lower Explosive Limit.  
mg - Milligrams.  
mg/l - Milligrams per liter (weight to volume).  
NPDES - National Pollutant Discharge Elimination System.  
POTW - Publicly Owned Treatment Works.  
PL - Public Law.  
SIC - Standard Industrial Classification.  
SWDA - Solid Waste Disposal Act, 42 U.S.C. 6901, et. seq.  
USC - United States Code.  
TDWR - Texas Department of Water Resources.  
TSS - Total Suspended Solids.  
SARA - San Antonio River Authority

#### SECTION 4. Regulations.

4.1 General Discharge Prohibitions. No user shall directly or indirectly contribute or cause to be contribute, any pollutant or wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all such users of a POTW whether or not the user is subject to National Categorical Pretreatment Standards or any other National, State, or local Pretreatment Standards or Requirements. A user shall not contribute the following substances to any POTW:

(a) Any liquids, solids or gases, which by reason of their nature or quantity are, or may be sufficient, either alone or by interaction with other substances, to cause fire or explosion or be injurious in any other way to the POTW or to the operation of the POTW. At no time shall two successive readings on an explosion hazard meter, at the point of discharge into the system, or at any other point in the system, be more than five percent (5%) nor any single reading be over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. Prohibited materials include but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which SARA, the State or EPA has notified the user is a fire hazard to the system.

(b) Solid or viscous substances in such quantities and/or qualities which may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater treatment facilities such as, but not limited to: grease, garbage with particles greater than one-half (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud or glass grinding or polishing wastes.

(c) Any wastewater having a BOD of greater than 200 MG/L, or a TSS level of greater than 200 MG/L. (Note: Under certain conditions SARA may accept wastewater of a greater strength, subject to payment of an overstrength surcharge. See Section 5.2, Schedule of Fees.)

(d) Any wastewater having a pH less than 6.0 or greater than 8.5, or wastewater having any other corrosive property capable of causing inordinate damage or hazard to structures, equipment, and/or personnel of the POTW.

(e) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving stream at the POTW, or to exceed the limitation set forth in a Categorical Pretreatment Standard. A toxic pollutant shall include but not be limited to any pollutant identified pursuant to Section 307 (a) of the Act.

(f) Any noxious or malodorous liquids, gases, or solids which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to physically prevent reasonable safe and/or tolerable human and/or mechanical entry into the sewers for inspection, maintenance and repair purposes.

(g) Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, or scums, to be unsuitable for normal landfill disposal, land application reclamation or reuse, or to interfere with the reclamation process where the POTW is pursuing a reuse and reclamation program. In no case, shall a substance discharged to the POTW cause the POTW to be out of compliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Act; any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, or State criteria applicable to sludge management and/ or disposal methods being used.

(h) Any substance which will cause the POTW to violate its NPDES and/or State Wastewater Permit or the receiving water effluent quality standards.

(i) Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes, vegetable tanning solutions, and whole blood.

(j) Any wastewater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW treatment plant which exceeds 40 degrees centigrade (104 degrees fahrenheit). Wastewater entering the collection system cannot exceed 65.5 degrees centigrade (150 degrees fahrenheit) unless the quantity of heated discharge is of such volume that the total wastewater temperature at the nearest downstream manhole does not exceed 40 degrees centigrade (104 degrees fahrenheit).

(k) Any pollutants, including oxygen demanding pollutants (BOD, etc.) released at a flow and/or pollutant concentration which a user knows or should have reason to know will cause interference to the POTW. In no case shall a slug load have a flow rate or, contain concentration or quantities of pollutants, that exceed for any time period longer than fifteen (15) minutes, more than five (5) times the average daily concentration, quantities, or flow during normal operation.

(1) Any wastewater containing any radioactive wastes or isotopes of such half life or concentration as may exceed limits as permitted by the most current Federal or State regulations or as established by the Manager in compliance with applicable State or Federal regulations.

(m) Any wastewater which creates a public nuisance. When the Manager determines that a user(s) is indirectly discharging to the POTW any of the above enumerated substances in such quantities or concentrations so as to interfere with the operation or performance of the POTW, he shall: 1) advise the user(s) of the impact of the indirect discharge on the POTW; and 2) develop effluent limitation(s) for such user to correct the interference with the POTW.

4.2 Federal Categorical Pretreatment Standards. After the promulgation of the Federal Categorical Pretreatment Standard for a particular industrial subcategory, and upon expiration of any compliance grace period, the Federal Standard, if more stringent than limitations imposed under this Ordinance for sources in that subcategory, shall supersede and replace the limitations imposed under this Ordinance for that particular industrial subcategory. Federal Categorical Pretreatment Standards that are more stringent than limitations imposed under this Ordinance for sources in a particular industrial subcategory, and are already in existence at the time this Ordinance becomes effective, shall also supersede and replace the limitations imposed under this Ordinance as they apply to the particular industrial subcategory so regulated. The Manager shall notify all affected users of the modified applicable reporting requirements under 40 CFR, Part 403, Section 403.12.

4.3 Modification of Federal Categorical Pretreatment Standards. Where SARA's wastewater treatment system achieves consistent removal of pollutants limited by Federal Pretreatment Standards, SARA may apply to the Approval Authority for modification of specific limits in the Federal Pretreatment Standards. "Consistent removal" shall mean reduction in the amount of a pollutant or alteration of the nature of the pollutant by the wastewater treatment system to a less toxic or harmless state in the effluent which is achieved by the system in 95 percent of the samples taken when measured according to the procedures set forth in 40 CFR, Part 403, Section 403.7 (c)(2). "General Pretreatment Regulations for

Existing and New Sources of Pollution" promulgated pursuant to the Act. SARA may modify pollutant discharge limits in the Federal Pretreatment Standards if the requirements contained in 40 CFR, Part 403, Section 403.7 are fulfilled and prior approval from the Approval Authority is obtained.

4.4 Specific Pollutant Limitations. No person shall discharge wastewater containing in excess of the pollutant limits below. These limits are based on either flow-proportional or time-proportional composite samples.

Metal	NOT TO EXCEED		CITY OR SL.
	Daily Composite	Grab Sample	
mg/l arsenic	0.2	0.3	.7
mg/l barium	2.0	4.0	
mg/l boron	1.0		
mg/l cadmium	0.1	0.2	.7
mg/l calcium			
mg/l chromium (total)	1.0	5.0	5
mg/l copper	1.0	2.0	1.5
mg/l cyanide (total)	2.5		
mg/l iron			
mg/l lead	1.0	1.5	
mg/l manganese	2.0	3.0	
mg/l mercury	0.005	0.01	55.5
mg/l nickel	2.0	3.0	55
mg/l PCB			
mg/l Potassium			
mg/l selenium	0.1	0.2	.02
mg/l sodium			
mg/l silver	0.1	0.2	.50
mg/l zinc	2.0	6.0	2.50
mg/l free or emulsified oils and grease	200		2.00

Note: Specific pollutant limitations may be adjusted on a case by case basis, if shown through an engineering study, submitted by a registered professional engineer, that no detrimental impact will result to the POTW, its processes or by-products.

4.4.1 Other Heavy Metals. No other heavy metals or toxic materials may be discharged to the POTW without a permit from SARA specifying conditions of pretreatment, concentrations, volumes, and other applicable provisions.



Prohibited heavy metals and toxic materials include but are not limited to:

Antimony,  
Beryllium,  
Bismuth,  
Cobalt,  
Molybdenum,  
Tin,  
Uranium ion,  
Rhenium,  
Strontium,  
Tellurium,  
Herbicides,  
Fungicides, and  
Pesticides.

**4.5 Storm Water and Other Unpolluted Drainage.**

(a) No person may discharge to public sanitary sewers

- (1) unpolluted storm water, surface water, groundwater, roof runoff or subsurface drainage;
- (2) unpolluted cooling water;
- (3) unpolluted industrial process waters; or
- (4) other unpolluted drainage.

(b) In compliance with the Texas Water Quality Act and other statutes, SARA may designate storm sewers and other watercourses into which unpolluted drainage described in subsection (a) of this section may be discharged.

**4.6 State Requirements.** State specific pollutant requirements and limitations, if any, on indirect discharges shall immediately supersede and replace the requirements and limitations imposed by this Ordinance when the State requirements are more stringent than either the Federal or SARA standards and requirements.

**4.7 SARA's Right of Revision.** SARA reserves the right to amend this Ordinance at any time to establish more stringent specific pollutant limitations or requirements on indirect discharges to the Wastewater System if deemed necessary by SARA to protect the POTW processes or to cure or prevent an effluent quality problem in treated wastewater and/or resulting sludges. SARA reserves the right to amend this Ordinance to comply with the general objectives and purposes presented in Section 2 of this Ordinance.

4.8 Prohibition of Dilution. No user shall ever increase the use of process water, unpolluted water, surface water or storm water or in any other way attempt to dilute either a direct or indirect discharge as a partial or complete substitute for adequate treatment to achieve compliance with the specific pollutant limitations contained in the Federal Categorical Pretreatment Standards, or in any other specific pollutant limitations promulgated by SARA and/or State and incorporated in this Ordinance.

4.9 Accidental Discharges. Each user shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the owner or user's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection may be required to be submitted to SARA for review, and shall be approved by SARA before construction of the facility. No user who commences contribution to the POTW after the effective date of this Ordinance shall be permitted to introduce pollutants into the system until accidental discharge procedures have been approved by SARA. Review and approval of such plans and operating procedures shall not relieve the industrial user from the responsibility to modify the user's facility as necessary to meet the requirements of this Ordinance. In the case of an accidental discharge, it is the responsibility of the user to immediately telephone and notify the Manager of the incident. The notification shall include the time and location of the discharge, type of waste, concentration and volume, and corrective actions taken.

4.10 Written Notice. Within five (5) working days following an accidental discharge, the user shall be required to submit to the Manager or his designated representative, a written letter report describing the cause of the discharge and the measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as a result of damage to the POTW, the environment, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this Ordinance or other applicable law. Failure to notify the Manager of an accidental discharge may result in legal action or discontinuation of service.

4.11 Notice to Employees. Employers shall take measures to insure that all appropriate employees be advised of the notification procedure to be used in the event of an accidental discharge.

## SECTION 5 Fees.

5.1 Purpose. It is the purpose of this section to provide for the recovery of costs from users of SARA's wastewater disposal system for the implementation and continued operation of the program established herein.

5.2 Schedule of Fees. The fees will consist of four (4) basic charges. These include: a permit fee required of all Industrial users; a sampling fee to be levied at the time of sampling; an analysis fee to recover the costs of sample analysis; and, where applicable, an overstrength surcharge fee. The fee schedule will be attached to and become part of the Industrial Wastewater Discharge Permit. (See Appendix A)

## SECTION 6 Administration.

6.1 Wastewater Discharges. It shall be unlawful to indirectly discharge any industrial wastewater into the Wastewater System (POTW included therein) without first applying for and receiving a permit to do so. This rule shall apply except when the Manager or this Ordinance specifically authorizes an indirect discharge in full accordance with other provisions of this Ordinance.

### 6.2 Industrial Wastewater Discharge Permit.

6.2.1 Permit Application. Users required to obtain an Industrial Wastewater Discharge Permit shall complete and file an application with SARA on a form prepared by SARA. The information requested may include the following items

- (a) Name(s), address(es), and location(s);
- (b) SIC number according to the Standard Industrial Classification Manual, 1972, Bureau of the Budget, as amended;
- (c) The nature and concentration of any pollutants in the discharge which are limited by SARA, State or Federal Pretreatment Standard, as determined by a Registered Professional Engineer; sampling and analysis shall be performed in accordance with procedures established by the EPA pursuant to Section 304 (g) of the Act and contained in 40 CFR, Part 136, as amended;

- (d) Time and duration of contribution;
- (e) Average daily and peak wastewater flow rates, including daily, monthly and seasonal variations if any;
- (f) Site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, sewer connections, and appurtenances by the size, location and elevation;
- (g) Description of activities, facilities and plant processes on the premises including all materials which are, or could be discharged;
- (h) Each product by type, amount, process or processes and rate of production;
- (i) Type and amount of raw materials processed (average and maximum per day);
- (j) Number and type of employees, and hours of operation of plant and, if required in accordance with other provisions herein, the proposed or actual hours of operation of pretreatment system;
- (k) Any other relevant information as may be deemed by SARA to be necessary to evaluate the permit application, or as required under Section 6.5 of this Ordinance.

**6.2.2 Permit Modifications.** Upon the promulgation of an applicable Categorical Pretreatment Standard, the Industrial Wastewater Discharge Permit of users subject to such Standards shall be revised to require compliance with such Standard within the time frame prescribed by such Standard. Where a user becomes subject to an applicable Categorical Pretreatment Standard, and has not previously submitted an application for an Industrial Wastewater Discharge Permit as required by 6.2.1, the user shall apply for an Industrial Wastewater Discharge permit within 180 days after the promulgation of the applicable Categorical Pretreatment Standard but shall also comply with such Standard within the time frame prescribed by such Standard regardless of local permit issuance schedule. In addition, the user with an existing Industrial Wastewater Discharge Permit shall submit to the Manager within 180 days after the promulgation of an applicable Categorical Pretreatment Standard the information required by paragraphs (a) through (c) and (k) of Section 6.2.1. The Manager reserves the right to modify

existing permits when in his judgment such modifications will protect the health and safety interests of the users of the POTW. Changes of occupancy, ownership or operations of a permitted business shall be reported to the Manager within thirty (30) days of such an occurrence and the user must further comply with Section 6.2.5 contained herein.

**6.2.3 Permit Conditions.** Industrial Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other applicable State and Federal regulations, as well as the user charges and fees established by SARA. Permits may contain the following:

(a) The unit charge or schedule of user charges and fees for the wastewater to be discharged to a Wastewater System;

(b) Limits on the average and maximum wastewater constituents and characteristics;

(c) Limits on average and maximum rate and time of discharge or requirements for flow regulations and equalization;

(d) Requirements for installation and maintenance of inspection and sampling facilities, including technical data relative to location, slope, and capacity of piping used in the sampling facility or discharge point;

(e) Specifications for monitoring programs which may include the number of sampling locations, frequency of sampling, number, types and standards for tests and reporting schedule;

(f) Compliance schedules;

(g) Requirements for submission of technical reports or discharge reports;

(h) Requirements for maintaining and retaining plant records relating to wastewater discharge as specified by SARA and affording SARA access thereto;

(i) Requirements for reporting the introduction of any new wastewater constituents or any substantial change in the volume or character of the wastewater constituents being introduced into the Wastewater System; (See Appendix C)

(j) Requirements for reporting slug discharges as per the provisions of this Ordinance;

(k) Other conditions as deemed appropriate by SARA to ensure compliance with Ordinance.

**6.2.4 Permit Duration.** Permits shall be issued for a specified time period, not to exceed five (5) years. A permit may be issued for a period of less than a year or may be stated to expire on a specific date. The terms and conditions of the permit are subject to modification by SARA during the term of the permit as limitations or requirements as identified in this Ordinance are modified or other just cause exists that warrants modification. The user shall be informed of any proposed changes in his permit prior to the effective date of the proposed change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

**6.2.5 Permit Transfer.** Industrial Wastewater Discharge Permits are issued to a specific user for a specific operation at a specific location. A wastewater discharge permit shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation without the prior approval of SARA.

**6.2.6 Waste Haulers Permit.** Wastewater Discharge Permits for waste haulers will be issued in accordance with the provisions of this Ordinance. All waste haulers will discharge into a manhole at a designated treatment plant site. No off-site discharges will be permitted.

**6.3 Monitoring Facilities.** The Wastewater System may require monitoring facilities that allow inspection, sampling, and flow measurement of the discharge point and/or internal drainage systems located on private property. These facilities shall be provided by the user and operated at the user's expense. The monitoring facility should normally be situated on the user's premises, but SARA may, when such a location would be impractical or cause undue hardship on the user, allow the facility to be constructed in the public street or sidewalk area and located so that it will not create a public safety hazard nor be obstructed by structures, landscaping or parked vehicles.

There shall be ample room in or near such sampling manhole or facility to safely allow for inspection personnel to position sampling equipment and prepare field samples for analysis.

Whether constructed on public or private property, the sampling and monitoring facilities shall be provided in accordance with the Wastewater System requirements and all applicable local construction standards and specifications.

**6.4 Inspection and Sampling.** SARA shall inspect the facilities of any user to ascertain whether the purpose of this Ordinance is being met and all requirements are being complied with. Employers and employees of premises where industrial wastewater is generated or discharged shall allow authorized SARA representatives displaying proper identification ready access to the premises at all reasonable times for the purpose of: inspecting wastewater generating operations and processes; wastewater flow monitoring and sampling; and examination of business records pertinent to wastewater volume and quality. Where a user has safety and/or security measures in force which require user issuance of special safety equipment and/or proper identification and clearance before allowing entry into their premises, the user shall make necessary arrangements with their security guards or similar personnel, so that upon presentation of suitable identifications, personnel from SARA, the State, or EPA will be permitted to enter, without delay, for the purpose of performing responsibilities reasonably associated with those stated above and reasonably required to accomplish the purposes and objectives of this Ordinance.

Concentration and constituent analysis of wastewater from samples collected from any industrial user may be determined by SARA or its authorized agent, a Registered Professional Engineer contracted by the discharger, or by any other qualified party approved by SARA. If the discharger elects to contract with a Registered Professional Engineer for sampling and analysis of wastewater, the report submitted should contain a statement that the samples collected and values determined are based on daily composite sampling representative of the establishment's flow. The volume of wastewater may be determined by methods similar to those typically used to calculate the monthly general service customer sewer service charge.

**6.5 Pretreatment.** Users shall provide necessary wastewater treatment as required to comply with this Ordinance and to achieve compliance with all Federal Categorical Pretreatment Standards within compliance schedule requirements as specified by the Federal Pretreatment regulations. Any facilities required to pretreat wastewater to quality standards required by SARA or Approving Authority shall be provided, operated, and maintained at the user's expense. Detailed plans showing the pretreatment facilities and an outline of the

pretreatment facility operating procedures shall be prepared by a Registered Professional Engineer and submitted to the Manager for review. All plans shall be approved by the Manager before construction of the facility. The user shall insure that construction of said treatment facility is accomplished within the time period specified by SARA. A schedule for completion with periodic progress reports may be required. The review of such plans and operating procedures will in no way relieve the user from the responsibility of modifying the facility as necessary to produce an effluent acceptable to SARA under the provisions of this Ordinance. Any subsequent changes in the pretreatment facilities or their method of operation shall be reported to and be reviewed for approval by the Manager prior to the user's initiation of the changes. All records relating to compliance with Pretreatment Standards shall be made available to officials of SARA, the EPA or the State of Texas upon request and shall be retained by the user for a minimum of three (3) years or until any ongoing litigation involving the pretreating user, and related to compliance with this Ordinance, has been resolved.

**6.5.1 Initial Compliance Report.** Within thirty (30) days following the initial date required pretreatment facilities are operational or, required modification of production processes affecting the quality of wastewater discharge are complete, or, in the case of a new source, the commencement of the introduction of wastewater into the POTW, any user subject to Pretreatment Standards and Requirements shall submit to the Manager a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by Pretreatment Standards and Requirements. The report will include average and maximum daily flows for these process units in the user facility which are limited by such Pretreatment Standards or Requirements. The report shall state whether the applicable Pretreatment Standards or Requirements are being met on a consistent basis and, if not, what additional operation and maintenance and/or pretreatment is necessary to bring the user into compliance with the applicable Pretreatment Standards or Requirements. This statement shall be signed by an authorized representative of the industrial user, and certified by a Registered Professional Engineer. For industrial users not falling under Categorical Standards, certain reporting requirements may be modified as deemed appropriate.

**6.5.2 Periodic Compliance Reports.**

(1) Any user subject to a Categorical Pretreatment Standard requiring pretreatment facilities shall, in accordance with 40 CFR, Part 403, submit to the Manager brief reports



indicating the nature and concentration of pollutants in the effluent which are limited by such Pretreatment Standards. These brief reports will be submitted at least twice annually or as required by the Manager. In addition, these reports shall include a record of all daily flows which during the reporting period exceeded the average daily flow reported by the user in the application as described in Sections 6.2.1 (e) and 6.2.3 (c) of this Ordinance. At the discretion of the Manager and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Manager may agree to alter the months during which the above reports are to be submitted.

(2) The Manager may impose mass limitations on users, which become a part of the permit, in cases where the imposition of such mass limitations are appropriate. In such cases, the report required by subparagraph 6.5.2 (1) shall indicate the mass of pollutants in the effluent of the user regulated by Pretreatment Standards. Mass limitations are expressed for a pollutant in terms of the permissible mass discharge in pounds or kilograms per day or in pounds or kilograms per unit measure of product produced by the industrial process being regulated. These reports shall contain the results of sampling and analysis of the discharge, including the flow, nature, and concentration, or production and mass where requested by the Manager, of pollutants contained therein which are limited by the applicable Pretreatment Standards. The frequency of monitoring shall be prescribed in the Industrial Wastewater Discharge Permit or in the applicable Pretreatment Standard. All analyses shall be performed in accordance with procedures established by the Administrator pursuant to Section 304 (g) of the Act and contained in 40 CFR, Part 136 and amendments thereto or with any other test procedures approved by the Administrator. Sampling shall be performed in accordance with techniques approved by the Administrator.

6.6 Confidential Information. User information and data obtained from reports, questionnaires, permit application, permits, and monitoring programs and from inspections shall be available to SARA, TDWR and EPA without restriction. Regarding distribution of the above described information to other interested parties, including the general public; unless the user specifically requests and is able to demonstrate to the satisfaction of SARA that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the user, the information will be made available to the public.

When requested by the person furnishing a report, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available, upon written request, to TDWR and EPA for uses related to this Ordinance, the National Pollutant Discharge Elimination System (NPDES) Permit, State Disposal System permit and/or the Pretreatment Program; provided, however, that such portions of a report shall be available for use by the State or EPA in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information.

#### SECTION 7. Enforcement.

7.1 Dangerous Discharges. The Manager may unilaterally order the suspension of water and/or wastewater services(s) to any user in order to prevent or eliminate an indirect discharge which would in his judgment, cause imminent, serious endangerment to the environment, significant interference with the POTW, or violations of SARA's NPDES permit conditions.

Concurrent with ordering such a suspension, the Manager shall issue a brief written letter report containing information and investigative data upon which the Manager relied in ordering the suspension of service(s). A copy of this report will be expeditiously forwarded to the affected user(s).

The Manager shall order reinstatement of any discontinued water and/or wastewater service(s) upon presentation to him by the user of written registered professional engineering proof or other written proof acceptable to SARA that the dangerous discharge has been eliminated and that recurrence is not possible.

Cost incurred by SARA or its agents in detecting, investigating, monitoring, measuring and eliminating the dangerous discharge, along with any disconnect and reconnect fees, shall be reimbursed to SARA by the user(s) responsible for the dangerous discharge. Any property damages to the POTW or its appurtenant structures resulting from the dangerous discharge shall also be borne by the user(s) responsible for the dangerous discharge.

Because of the urgent public need to immediately abate such dangerous discharges, the affected user is not afforded an administrative review hearing before the Board of Directors prior to the Manager ordering suspension of water

and/or wastewater service(s). Subsequent to an order to suspend service(s), the Manager shall issue a notice of alleged violation to the affected user in accordance with Section 7.2 below. This action will afford the affected user an opportunity for administrative procedural review of an alleged violation of this Ordinance and/or and Industrial Wastewater Discharge Permit.

**7.2 Notice of Alleged Violations.** Whenever the Manager believes that a user has violated or is violating this Ordinance and/or an Industrial Wastewater Discharge Permit, the Manager or his designated representative may serve (either personally or by registered or certified mail return receipt requested) upon such user a written notice stating the nature of the alleged violation. The recipient of an alleged violation notice must respond in writing to the Manager or his designated representative within fifteen (15) working days of the mailing date or personal delivery date of such notice.

**7.3 Response by User to Notice of Alleged Violation.** The user responding to receipt of an alleged violation notice shall file written response in substantially one of the two following forms:

**7.3.1** Should the user admit his or her responsibility for the alleged violation, the user must submit a letter report to the Manager.

If the nature of the violation of either the permit or this Ordinance involves an administrative or procedural noncompliance, the letter report shall contain information regarding corrective measures and time schedules the user has adopted to assure expeditious compliance.

**7.3.2** Should the user deny his or her responsibility for the alleged violation, the user must submit a letter report to the Manager.

Regardless of the nature of the alleged violation (be it substantive regarding specific discharge(s) of industrial waste, or administrative or procedural) the letter report may request an administrative hearing before the Board of Directors to address the alleged violation.

In the alternative, the user may waive his or her right to an administrative hearing before the Board of Directors and defend against any legal action taken by SARA in the appropriate court of jurisdiction.

Within ten (10) working days of the receipt by the Manager of any written request for a hearing, the Manager or his designated representative shall respond in writing to the user notifying the user of the date, time, and location of the hearing. All hearings shall take place within thirty (30) working days of the receipt by the Manager of the written request for such hearing.

7.3.3 Should the recipient of an alleged violation notice fail to respond in writing to the Manager within the fifteen (15) working days response period as outlined above in 7.2, 7.3, 7.3.1, 7.3.2, the recipient user is deemed to have waived his or her right to request an administrative hearing before the Board of Directors and may be sued or prosecuted for the consequences of the violation cited in the notice of alleged violation at a legal proceeding in the appropriate municipal, county, district, or federal court.

7.4 Board of Directors Hearing. The purpose and intent of the Board hearing process is to afford a user requesting the hearing a non-litigative forum at which alleged Ordinance or Permit violations may be reviewed and/or resolved. The Board of Directors may issue notices requesting the attendance and testimony of witnesses and experts familiar with alleged violations. The Board may also call for the production of evidence relevant to the alleged violation. At the hearing, a majority of the Board of Directors shall receive evidence and testimony from both SARA staff and the user in both written and oral form. At the conclusion of the hearing the Board members present shall prepare a summary report of the proceedings addressing topics such as: suggested enforcement or legal actions, if any; compliance schedules; proposed amendments or modifications to either the Industrial Waste Ordinance or an Industrial Wastewater Discharge Permit; discontinuance of wastewater services; changes in administrative or enforcement staff procedures; suggested pretreatment facilities for a user or class of user; etc.

7.5 Legal Action. In spite of any other provisions contained in this Ordinance, SARA reserves the right to at any time seek legal and/or equitable remedies against any person or corporation allegedly violating this Ordinance, the provisions of an Industrial Wastewater Discharge Permit, and/or Federal or State laws governing water quality and industrial wastewater pretreatment. A legal proceeding prosecuted under this Ordinance does not constitute a waiver by SARA of any right SARA may have to join in a legal action originating from some alternative source of law.

The SARA staff may commence such actions for appropriate legal and/or equitable relief in courts having proper jurisdiction upon authorization by the Board of Directors to do so.

#### SECTION 8 Penalties and Costs.

8.1 Civil Penalties. Any user who is found guilty in the Municipal Court of the City in which a violation of this Ordinance or an Industrial Wastewater Discharge Permit occurs, or by the Justice of the Peace of the Precinct in which a violation occurs shall be assessed a fine not to exceed \$200.00 dollars for each offense. Each day on which a violation shall occur or continue shall be deemed a separate and distinct actionable offense. In addition to the penalties provided for herein, SARA may seek recovery in a court of competent jurisdiction for any actual damages to the POTW. Damages to the POTW specifically include contamination of sludges, residues, or of SARA's designated sludge disposal area which result from unauthorized discharge into the POTW; and SARA may seek recovery of all costs associated with special handling and disposal procedures required to comply with Section 405 of the Act, the Toxic Substances Control Act, the Solid Waste Disposal Act (SWDA), Texas Department of Health and Texas Department of Water Resources sludge management regulations which become applicable as a result of such contamination. SARA may also seek reasonable attorney fees, court costs, and other expenses of litigation along with all other relief, both in law and in equity, to which it might be entitled. Additional recoveries and relief in law and/or equity under existing Federal or State law are not precluded by specific recoveries obtained by SARA under this Section of the Ordinance.

8.2 Falsifying Information. Any person who knowingly makes any false statements, representations or certifications in any industrial wastewater discharge permit application, record, report, plan or other document filed with SARA or required to be maintained pursuant to this Ordinance, or the Industrial Wastewater Discharge Permit; or who tampers with, or knowingly renders inoperable any monitoring device; or who falsifies records required to be kept pursuant to this Ordinance; shall, upon conviction, be punished by a fine not to exceed \$200.00 dollars.

#### SECTION 9. Severability.

9.1 If any word, phrase, clause, paragraph, part of provision of this Ordinance or its subsections or the application thereof to any person or circumstance shall be held

to be invalid or unconstitutional, the remainder of that subsection and of this Ordinance shall nevertheless be valid, and the Board of Directors hereby declares that that subsection would have been enacted without such invalid, or unconstitutional word, phrase, clause, paragraph, part or provision.

SECTION 10. Conflict.

All other Ordinances and parts of other Ordinances inconsistent or conflicting with any part of this Ordinance are hereby repealed to the extent of such inconsistency or conflict.

PASSED AND APPROVED this, the 15th day of May, A.D., 1985.

  
Cecil W. Bain, Chairman

ATTEST:

  
W. W. LORENZ, Secretary

ACKNOWLEDGEMENT OF CHAIRMAN

STATE OF TEXAS

COUNTY OF BEXAR

BEFORE ME, the undersigned authority, on this day personally appeared CECIL W. BAIN, Chairman of the Board of Directors of the SAN ANTONIO RIVER AUTHORITY, a political subdivision of the State of Texas; known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and Deed of said political subdivision.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 15th day of May A. D. 1985.

Rosalinda R. Rivas  
Rosalinda R. Rivas  
Notary Public in and for  
the State of Texas

My commission expires on: 05-27-85

CERTIFICATE OF SECRETARY

SAN ANTONIO RIVER AUTHORITY

San Antonio, Bexar County, Texas

I hereby certify the above to be a duplicate original of the record in the matter of the adoption of Ordinance No. 0-805 and of the Ordinance as officially promulgated and on file in the Ordinance Book of this office, and I further certify that said Ordinance was adopted by the Members of said Board by Ten (10) affirmative votes, zero (0) negative votes, and TWO (2) not voting, at a Regular Meeting of the Board of Directors of said Authority held on the 15th day of May, A. D., 1985, at San Antonio, Bexar County, Texas.

IN TESTIMONY WHEREOF, witness my hand and the official seal of the SAN ANTONIO RIVER AUTHORITY at San Antonio, Bexar County, Texas, on this the 15th of May, A. D. 1985.

  
W. W. LORENZ, Secretary



SAN ANTONIO RIVER AUTHORITY

INDUSTRIAL WASTE ORDINANCE

APPENDIX A

SCHEDULE OF FEES

Fees associated with administration of the Industrial Waste Ordinance will be as follows:

- (1) Permit Fee. A fee of \$25.00 will be forwarded to SARA with each completed application for an industrial sewer connection.
- (2) Sampling Fee. A fee of \$25.00 will be charged to the permit holder for each on-site visit conducted by SARA personnel for the purpose of gathering samples, in accordance with Section 6.4 of the Industrial Waste Ordinance.
- (3) Analysis Fee. In those cases where sample analysis requirements exceed the testing capabilities of SARA's laboratory (e.g. heavy metals content), SARA will arrange for samples to be collected by a contract laboratory for analysis, and the cost of such service will be charge by SARA to the permit holder.
- (4) Overstrength Surcharge. On a case-by-case basis, SARA may waive the requirement for pretreatment prior to discharge of overstrength sewage (BOD and/or TSS greater than 200 MG/L) into the wastewater system. In such instances, an Overstrength Surcharge equal to 50% of the permit holder's monthly retail sewer service charge will be levied. To the applicable user such Overstrength Surcharge will be billed quarterly by and payable directly to SARA.

**SAN ANTONIO RIVER AUTHORITY**

**INDUSTRIAL WASTE ORDINANCE**

**APPENDIX B**

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT APPLICATION**

Please complete this form and return with \$25.00 application fee to:

San Antonio River Authority  
P. O. Box 9284  
San Antonio, Texas 78204

**SECTION A. GENERAL INFORMATION:**

1. Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_
2. Service Address: \_\_\_\_\_ Zip Code: \_\_\_\_\_
3. Mailing Address: \_\_\_\_\_ Zip Code: \_\_\_\_\_
4. Name & Title of Signing Official: \_\_\_\_\_ Phone: \_\_\_\_\_
5. Name & Title of Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_

**SECTION B. PRODUCT OR SERVICE INFORMATION:**

1. Brief narrative description of manufacturing or service activity and rate of production: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Principal Raw Material(s) used: \_\_\_\_\_
3. Process Catalyst(s) used: \_\_\_\_\_
4. Amount of Raw Material Used Per Year: \_\_\_\_\_
5. Standard Industrial Classification Number for all Processes: \_\_\_\_\_
6. Principal Product(s) or Service(s): \_\_\_\_\_  
\_\_\_\_\_

**SECTION C. OPERATIONAL CHARACTERISTICS:**

1. Are major processes batch or continuous? \_\_\_\_\_
2. Average number of batches per 24 hr. period. \_\_\_\_\_
3. Are your processes subject to seasonal variations? \_\_\_\_\_
4. If so explain these variations: \_\_\_\_\_  
\_\_\_\_\_
5. Shift variation:
  - a. Number of work days per week: \_\_\_\_\_ Number of Shifts: \_\_\_\_\_
  - b. Average number of employees per shift:
    - 1st \_\_\_\_\_ Shift start time: \_\_\_\_\_
    - 2nd \_\_\_\_\_ Shift start time: \_\_\_\_\_
    - 3rd \_\_\_\_\_ Shift start time: \_\_\_\_\_

**SECTION D. SEWER CONNECTION AND DISCHARGE INFORMATION:**

1. Number of sewer taps: \_\_\_\_\_ Size of lines: \_\_\_\_\_  
Average flow (gals.) per 24 hrs. \_\_\_\_\_ Per year \_\_\_\_\_
2. Type of primary metering device (flow) \_\_\_\_\_  
Description: \_\_\_\_\_
3. Sketch layout of complex showing plumbing details, building(s), sites where processes are occurring, streets, security considerations, etc. and submit as attachment.
4. Source of water: \_\_\_\_\_
5. Other point of discharge: (i.e. storm drain) \_\_\_\_\_  
\_\_\_\_\_

**SECTION E. PRETREATMENT FACILITIES:** (To be completed where pretreatment facilities are required. See Section 4 of Industrial Waste Ordinance for determination of pretreatment need.)

1. Describe operation of pretreatment facilities: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Primary pollutant(s) designed to remove: \_\_\_\_\_
3. Estimated pollutant quantity removed per year: \_\_\_\_\_
4. Fate of pollutants removed: \_\_\_\_\_
5. Waste Hauler: \_\_\_\_\_
  - a. Name: \_\_\_\_\_
  - b. Address: \_\_\_\_\_
  - c. Phone: \_\_\_\_\_
  - d. Number of loads hauled per month: \_\_\_\_\_  
Quantity hauled per load: \_\_\_\_\_
6. Are chemicals stored on site: \_\_\_\_\_

7. Describe actions taken in case of accidental spill: \_\_\_\_\_
8. Name of operator of facilities and title: \_\_\_\_\_
9. List certifications, if any: \_\_\_\_\_

**SECTION F. PRIORITY POLLUTANT INFORMATION:**

Please review the chemicals listed on pages B-4 through B-7 of this application. List and provide the following data for each chemical compound which has been indicated as "known present" in the table below (attach additional sheets if needed).

ITEM NO.	CHEMICAL COMPOUND	ANNUAL USAGE (LBS.)	ESTIMATED LOSS TO SEWER LBS./YR.

**SECTION G. ADDITIONAL EXHIBITS:**

The applicant will submit in addition to Sections C, D, E and F the following exhibits as prepared by a Registered Professional Engineer or Licensed Architect.

1. A plat of the property showing accurately all sewers and drains, all water wells or sources of water and their location, along with their size and maximum rate of flow. (Exhibit G-1)
2. A complete schedule of all process waters and raw industrial waste produced or expected to be produced before pretreatment (if any) at said property, including a description of the character of each waste, the daily volume and maximum rate of discharge and representative analysis of the raw waste. (Exhibit G-2)
3. Plans and specifications covering all pretreatment facilities for waste treatment proposed to be performed on the waste under this permit with a full description (laboratory analysis) of the character of the waste to be discharged to the public sewer, daily volume and maximum rate of discharge to the public sewer. (Exhibit G-3)
4. Plans and specifications of the grease, oil and sand interceptor and control manhole. (Exhibit G-4)

## PRIORITY POLLUTANT INFORMATION:

Page 1 of 2

Please indicate by placing an "X" in the appropriate box by each listed chemical whether it is Suspected to be Absent, Known to be Absent, Suspected to be Present, or Known to be Present in your manufacturing or service activity or generated as a byproduct. Some compounds are known by other names; these compounds have been marked with asterisks.\* See Appendix A for Synonym Listing.

ITEM NO.	CHEMICAL COMPOUND	Sus.Ab.	Knw.Ab.	Sus.Pres.	Knw.Pres.	ITEM NO.	CHEMICAL COMPOUND	Sus.Ab.	Knw.Ab.	Sus.Pres.	Knw.Pres.
1.	ammonia					47.	chlorobenzene				
2.	asbestos (fibrous)					48.	chloroethane*				
3.	cyanide (total)					49.	2-chloroethylvinyl ether				
						50.	chloroform*				
4.	antimony (total)					51.	chloromethane*				
5.	arsenic (total)					52.	2-chloronaphthalene				
6.	beryllium (total)					53.	2-chlorophenol*				
7.	cadmium (total)					54.	4-chlorophenylphenyl ether				
8.	chromium (total)					55.	chrysene*				
9.	copper (total)					56.	4,4' - DDD*				
10.	lead (total)					57.	4,4' - DDE*				
11.	mercury (total)					58.	4,4' - DDT*				
12.	nickel (total)					59.	dibenzo(a,h)anthracene*				
13.	selenium (total)					60.	dibromochloromethane*				
14.	silver (total)					61.	1,2-dichlorobenzene*				
15.	thallium (total)					62.	1,3-dichlorobenzene*				
16.	zinc (total)					63.	1,4-dichlorobenzene*				
						64.	3,3'-dichlorobenzidine				
17.	acenaphthene					65.	dichlorodifluoromethane*				
18.	acenaphthylene					66.	1,1-dichloroethane*				
19.	acrolein					67.	1,2-dichloroethane*				
20.	acrylonitrile					68.	1,1-dichloroethene*				
21.	aldrin					69.	trans-1,2-dichloroethene*				
22.	anthracene					70.	2,4-dichlorophenol				
23.	benzene					71.	1,2-dichloropropane*				
24.	benzidine					72.	(cis & trans)1,3-dichloropropene*				
25.	benzo(a)anthracene*					73.	dieldrin				
26.	benzo(a)pyrene*					74.	diethyl phthalate*				
27.	benzo(b)fluoranthene					75.	2,4-dimethylphenol*				
28.	benzo(g,h,i)perylene*					76.	dimethyl phthalate				
29.	benzo(k)fluoranthene*					77.	di-n-butyl phthalate				
30.	a-BHC (alpha)					78.	di-n-octyl phthalate*				
31.	b-BHC (beta)					79.	4,6-dinitro-2-methylphenol*				
32.	d-BHC (delta)					80.	2,4-dinitrophenol				
33.	g-BHC* (gamma)					81.	2,4-dinitrotoluene				
34.	bis(2-chloroethyl)ether*					82.	2,6-dinitrotoluene				
35.	bis(2-chloroethoxy)methane*					83.	1,2-diphenylhydrazine*				
36.	bis(2-chloroisopropyl)ether*					84.	endosulfan I*				
37.	bis(chloromethyl)ether*					85.	endosulfan II*				
38.	bis(2-ethylhexyl)phthalate*					86.	endosulfan sulfate				
39.	bromodichloromethane*					87.	endrin				
40.	bromoform*					88.	endrin aldehyde				
41.	bromomethane*					89.	ethylbenzene				
42.	4-bromophenylphenyl ether					90.	fluoranthene				
43.	butylbenzyl phthalate					91.	fluorene*				
44.	carbon tetrachloride*					92.	heptachlor				
45.	chlordane					93.	heptachlor epoxide				
46.	4-chloro-3-methylphenol*										

PRIORITY POLLUTANT INFORMATION (Continued):

.. Page 2 of 2

ITEM NO.	CHEMICAL COMPOUND	Sus.Ab.	Knw.Ab.	Sus.Pres.	Knw.Pres.	ITEM NO.	CHEMICAL COMPOUND	Sus.Ab.	Knw.Ab.	Sus.Pres.	Knw.Pres.
94.	hexachlorobenzene*					112.	PCB-1248*				
95.	hexachlorobutadiene					113.	PCB-1254*				
96.	hexachlorocyclopenta- diene*					114.	PCB-1260*				
97.	hexachloroethane*					115.	pentachlorophenol				
98.	indeno(1,2,3-cd)pyrene*					116.	phenanthrene				
99.	isophorone*					117.	phenol				
100.	methylene chloride*					118.	pyrene				
101.	naphthalene					119.	2,3,7,8-tetrachlorodi- benzo-p-dioxin*				
102.	nitrobenzene					120.	1,1,2,2-tetrachloroethane*				
103.	2-nitrophenol*					121.	tetrachloroethene*				
104.	4-nitrophenol*					122.	toluene*				
105.	n-nitrosodimethylamine*					123.	toxaphene				
106.	n-nitrosodipropylamine*					124.	1,2,4-trichlorobenzene				
107.	n-nitrosodiphenylamine*					125.	1,1,1-trichloroethane*				
108.	PCB-1016*					126.	1,1,2-trichloroethane*				
109.	PCB-1221*					127.	trichloroethane*				
110.	PCB-1232*					128.	trichlorofluoromethane*				
111.	PCB 1242*					129.	2,4,6-trichlorophenol				
						130.	vinyl chloride*				

APPENDIX A - PRIORITY POLLUTANT SYNONYM LISTING:

Page 1 of 2

CHEMICAL COMPOUND	SYNONYM
benzo(a)anthracene	1,2-benzanthracene
benzo(a)pyrene	2,3-benzphenanthrene
benzo(g,h,i)perylene	3,4-benzopyrene
benzo(k)fluoranthene	1,12-benzoperylene
g-BHC	11,12-benzofluoranthene
bis-(2-chloroethyl) ether	lindane
bis(2-chloroethoxy)methane	2,2'-dichloroethyl ether
bis(2-chloroisopropyl) ether	2,2'-dichloroethoxy methane
bis(chloromethyl) ether	2,2'-dichloroisopropyl ether
bis(2-ethylhexyl)phthalate	(sym)dichloromethyl ether
bromodichloromethane	2,2'-diethylhexyl phthalate
bromoform	dichlorobromomethane
bromomethane	tribromomethane
carbon tetrachloride	methyl bromide
4-chloro-3-methylphenol	tetrachloromethane
chloroethane	para-chloro-meta-cresol
chloroform	ethylchloride
	trichloromethane
chloromethane	methyl chloride
2-chlorophenol	para-chlorophenol
chrysene	1,2-benzphenanthrene
4,4'-DDD	dichlorodiphenyldichloroethane
	p,p'-TDE
4,4'-DDE	tetrachlorodiphenylethane
	dichlorodiphenyldichloroethylene
4,4'-DDT	p,p'-DDX
dibenzo(a,h)anthracene	dichlorodiphenyltrichloroethane
dibromochloromethane	1,2,5,6-dibenzanthracene
1,2-dichlorobenzene	chlorodibromomethane
1,3-dichlorobenzene	ortho-dichlorobenzene
1,4-dichlorobenzene	meta-dichlorobenzene
dichlorodifluoromethane	para-dichlorobenzene
	difluorodichloromethane
1,1-dichloroethane	fluorocarbon-12
1,2-dichloroethane	ethylidene chloride
	ethylene chloride
1,1-dichloroethane	ethylene dichloride
(trans)-1,2-dichloroethene	1,1-dichloroethylene
	acetylene dichloride
1,2-dichloropropane	1,2(trans)-dichloroethylene
(cis & trans)1,3-dichloropropene	propylene dichloride
diethyl phthalate	(cis & trans)1,3-dichloropropylene
2,4-dimethylphenol	ethyl phthalate
	2,4-xyleneol

## APPENDIX A - PRIORITY POLLUTANT SYNONYM LISTING (Continued)

Page 2 of 2

CHEMICAL COMPOUND	SYNONYM
di-n-octyl phthalate	di(2-ethylhexyl)phthalate
4,6-dinitro-2-methylphenol	4,6-dinitro-ortho-cresol
1,2-diphenylhydrazine	hydrazobenzene
endosulfan I	a-endosulfan-alpha
endosulfan II	b-endosulfan-beta
fluorene	(alpha)-diphenylene methane
hexachlorobenzene	perchlorobenzene
hexachlorocyclopentadiene	perchlorocyclopentadiene
hexachloroethane	perchloroethane
indeno(1,3,3-cd)pyrene	2,3-ortho-phenylene pyrene
isophorone	3,5,5-trimethyl-2-cyclohexen-1-one
methylene chloride	dichloromethane
2-nitrophenol	para-nitrophenol
4-nitrophenol	ortho-nitrophenol
N-nitrosodimethylamine	dimethyl-nitrosoamine
N-nitrosodipropylamine	N-nitroso-di-n-propylamine
N-nitrosodiphenylamine	diphenyl-nitrosoamine
PCB-1016	Arochlor-1016
PCB-1221	Arochlor-1221
PCB-1232	Arochlor-1232
PCB-1242	Arochlor-1242
PCB-1248	Arochlor-1248
PCB-1254	Arochlor-1254
PCB-1260	Arochlor-1260
2,3,7,8-tetrachlorodibenzo-p-dioxin	TCDD
1,1,2,2-tetrachloroethane	acetylene tetrachloride
tetrachloroethane	perchloroethylene
	tetrachloroethylene
toluene	methylbenzene
	toluol
1,1,1-trichloroethane	methyl chloroform
1,1,2-trichloroethane	vinyl trichloride
trichloroethane	trichloroethylene
trichlorofluoromethane	fluorocarbon-11
	fluorotrichloromethane
vinyl chloride	chloroethene
	chloroethylene



**SECTION H. CERTIFICATION OF INFORMATION:**

The Permittee declares and agrees:

1. To operate and maintain any waste pretreatment facilities, as may be required as a condition of the acceptance into the public sewer of the industrial wastes involved, in an efficient manner at all times, and at no expense to SARA.
2. To cooperate with SARA and its representatives in their inspecting, sampling, and study of the industrial wastes and any facilities providing pretreatment.
3. To notify SARA immediately in the event of any accident, negligence or other occurrence that occasions discharge to the public sewerage system any wastes or process wastewater not covered by this Permit.
4. To accept and abide by all provisions of the Industrial Waste Ordinance of the San Antonio River Authority and of all pertinent orders or regulations that may be adopted in the future.
5. To accept and pay when billed the sewer service charge of the City of \_\_\_\_\_ or SARA, as applicable, and the Overstrength Surcharge outlined in Section 5 of SARA's Industrial Waste Ordinance, when applicable.

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, and/or imprisonment.

Note to Signing Official: In accordance with Title 40 of the Code of Federal Regulations Part 403 Section 403.14, information and data provided in this questionnaire which identifies the nature and frequency of discharge shall be available to the public without restriction. Requests for confidential treatment of information shall be governed by procedures specified in 40 CFR Part 2.

\_\_\_\_\_  
Signature of Official

\_\_\_\_\_  
Date

**\*NOTE TO PREPARER:**

All applicable spaces must be filled out, including pages B-4 and B-5, Priority Pollutant Information, before permit application will be reviewed. Additional sheets may be used and submitted as attachments. Should information and/or assistance be required, please contact the San Antonio River Authority, P. O. Box 9264, San Antonio, Texas, 78204, (512) 227-1373.

SAN ANTONIO RIVER AUTHORITY

INDUSTRIAL WASTE ORDINANCE

APPENDIX C

INDUSTRIAL WASTEWATER DISCHARGE PERMIT

A Permit to dispose of Industrial Wastes in compliance with applicable provisions of San Antonio River Authority Industrial Waste Ordinance No. O-805 and as more specifically described in the permit application, a copy of which is attached hereto, is hereby granted as follows to:

Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Address, Service: \_\_\_\_\_

Mailing: \_\_\_\_\_

Permit No.: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

ADDITIONAL REQUIREMENTS

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I have reviewed this Permit in its entirety and I understand and agree to all conditions and limitations imposed by the Industrial Waste Ordinance and this Permit.

\_\_\_\_\_  
Authorized Company Official

\_\_\_\_\_  
Title

APPROVAL

Named above party is granted permission to discharge wastewater into the sewage facilities of the San Antonio River Authority, pursuant to the current regulations for use of the facilities, fees, requirements, limitations or conditions imposed by this permit as listed above and as found on any additional attached pages.

\_\_\_\_\_  
General Manager or Authorized Representative

Title: \_\_\_\_\_ Date: \_\_\_\_\_

SAN ANTONIO RIVER AUTHORITY

INDUSTRIAL WASTE ORDINANCE

APPENDIX D

CERTIFICATION OF NO INDUSTRIAL DISCHARGE  
BY NON-PROCESS INDUSTRIAL CONNECTION

Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address, Service: \_\_\_\_\_  
Mailing: \_\_\_\_\_

I hereby warrant that no wastewater resulting from any industrial process will be discharged into the sewage facilities of SARA. In addition, I understand and agree that:

- (1) \_\_\_\_\_ must comply with SARA's  
(Company Name)  
Industrial Waste Ordinance No. O-805; and
- (2) Personnel of SARA will be granted access to company premises in accordance with Section 6.4 of the Industrial Waste Ordinance; and
- (3) If pollutants other than those normally found in domestic sewage are detected, I will immediately upon notice apply to SARA for an Industrial Waste Discharge Permit; and
- (4) \_\_\_\_\_ is liable for any penalties  
(Company Name)  
imposed for violations of the Industrial Waste Ordinance.

\_\_\_\_\_  
Authorized Company Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

Named above party is granted permission to discharge non-industrial wastewater into the sewage facilities of the San Antonio River Authority, pursuant to the current regulations for use of the facilities.

\_\_\_\_\_  
General Manager or Authorized Representative

Title: \_\_\_\_\_ Date: \_\_\_\_\_

SAN ANTONIO RIVER AUTHORITY

INDUSTRIAL WASTE ORDINANCE

APPENDIX E

ANNUAL INDUSTRIAL INFORMATION REPORT

Please complete this report and return to:

San Antonio River Authority  
P. O. Box 9284  
San Antonio, Texas 78204

Company Name: \_\_\_\_\_ Permit No.: \_\_\_\_\_

1. Product or Service Information:

Has any new product or service been added to your company in the last 12 months which result in discharge of pollutants other than those specified in permit? \_\_\_\_ yes \_\_\_\_ no. If yes, please attach explanation.

2. Discharge Information:

Has average flow discharge increased by more than 20% over that specified in Section D-1 of your permit application? \_\_\_\_ yes \_\_\_\_ no. If yes, please attach explanation.

3. Employment Information:

Total number of current employees: \_\_\_\_\_

Has the name of contact person, or the person responsible for pretreatment operation changed? \_\_\_\_ yes \_\_\_\_ no. If yes, please provide name and title of new person:

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

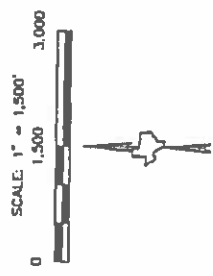
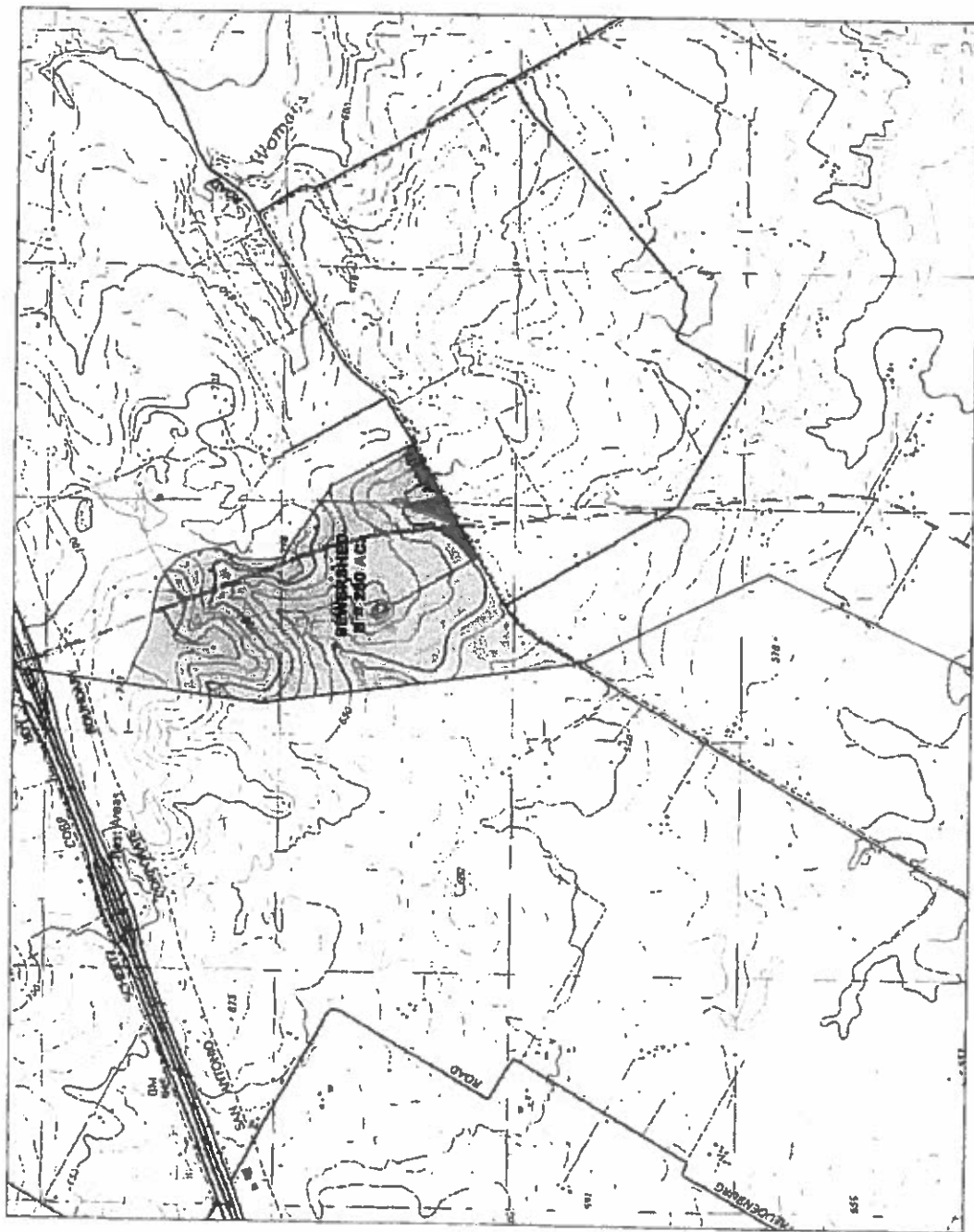
4. Pretreatment Information:

Has the operation of your pretreatment facility or the quantity of pollutants removed per year changed from the permit in the last 12 months? \_\_\_\_ yes \_\_\_\_ no. If yes, please attach explanation.

\_\_\_\_\_  
Authorized Company Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



PRELIMINARY FOR REVIEW ONLY  
 THESE DOCUMENTS ARE FOR DESIGN REVIEW ONLY AND NOT INTENDED FOR CONSTRUCTION BIDDING OR PERMITTING PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF  
 GABBY J. MONTGOMERY, JR.  
 TYPE OR PRINT NAME  
 114438  
 90/110  
 DATE

<b>RIVER CITY ENGINEERING</b> Civil, Environmental and Surveying <small>(a civil engineering firm)</small>		3001 SOUTH I STREET AUSTIN, TEXAS 78704-7017 FAX (512) 441-1200 1011 W. COUNTY LINE ROAD, SUITE C NEW BRUNSWICK, TEXAS 78120 FAX (512) 441-1200		<b>DRAWING INFORMATION</b> DESIGNED BY: GJM DRAWN BY: GJM CHECKED BY: GJM APPROVED BY: GJM FILE NAME: REVISIONS:		SCALE: DATE: 01 SEPTEMBER 2018 PROJECT NO: PLOT DATE: PLOT SCALE:		GREEN VALLEY SUD WASTEWATER MASTER PLAN SEWERED AREAS	SHEET 1 OF 1
--	--	--	--	--	--	---	--	---	--------------

# EXHIBIT C

Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 17

### Design Calculations

Reference: Domestic Technical Report 1.1

### Section 4



Innovative approaches  
Practical results  
Outstanding service

# **MARTINEZ IV WASTEWATER TREATMENT PLANT**

## **ENGINEERING DESIGN CALCULATIONS**

Prepared for:

**San Antonio River Authority**

Prepared by:

**FREESE AND NICHOLS, INC.**  
9601 McAllister Freeway Suite 1008  
San Antonio, Texas 78216  
210-298-3800  
MGT17215

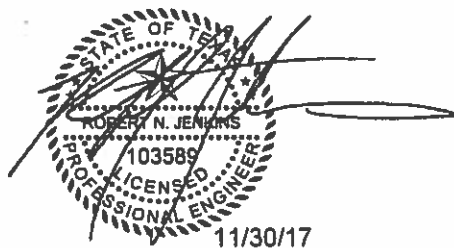


Innovative approaches  
Practical results  
Outstanding service

# MARTINEZ IV WWTP DESIGN CALCULATIONS

Prepared for:

**San Antonio River Authority**



**FREESE AND NICHOLS, INC.**  
TEXAS REGISTERED  
ENGINEERING FIRM  
F-2144

Section 3, Section 4, Section 12



**FREESE AND NICHOLS, INC.**  
TEXAS REGISTERED  
ENGINEERING FIRM  
F-2144

Section 1, Section 2, Section 5,  
Section 6, Section 7, Section 8,  
Section 9, Section 10, Section 11

Prepared by:

**FREESE AND NICHOLS, INC.**  
9601 McAllister Freeway Suite 1008  
San Antonio, Texas 78216  
210-298-3899

MGT17215



## TABLE OF CONTENTS

Section 1 - Influent Flows and Influent Characteristics .....	1
Section 2 – Peak Flow Hydraulic Profile .....	4
Section 3 – Influent Lift Station.....	14
Section 4 – Influent Lift Station System Curve Calculations.....	18
Section 5 - Headworks .....	23
Section 6 – Activated Sludge Calculations .....	26
Section 7 – Clarifier Calculations.....	37
Section 8 – UV Disinfection Calculations .....	47
Section 9 – Return Activated & Waste Activated Sludge Pump Calculations...	52
Section 10 – RAS/WAS Pump System Curve Calculations .....	54
Section 11 – Sludge Production Calculations.....	59
Section 12 – Abbott Road Lift Station Calculations .....	62

## **Section 1 - Influent Flows and Influent Characteristics**

#### **SARA Martinez IV WWTP Influent Flows**

As discussed in the Engineering Feasibility Report, the Martinez IV Wastewater Treatment Plant (WWTP) will service flows currently treated by the existing Martinez III plant and flows generated from new development expected in the Martinez IV service area. Upon initial start-up of the Martinez IV plant, wastewater flows to the San Antonio River Authority's existing Martinez III WWTP will be diverted to Martinez IV through a 51-inch gravity main. These Martinez III flows are 0.25 MGD average day flow with a peaking factor of 4 as provided by the San Antonio River Authority in their request for proposals, which corresponds to the TPDES Interim I Effluent Limitations and Monitoring Requirements as shown in Table 1-1.

Since only flows from the Martinez III plant will contribute to Martinez IV at start-up, 0.25 MGD was selected as the plant design flow for Phase 1 of plant operations. This design flow allows SARA flexibility to appropriately budget funds over a period of time. Additionally, capital costs are minimized by allowing initial construction of a single clarifier during the period only low flows are expected per TCEQ 217.153(c)(1).

The subsequent phasing of the Martinez IV plant shown in Table 1-1 accounts for future development anticipated in the Martinez IV service area. The timing and calculation of flows generated from the service area is detailed in the Engineering Feasibility Report and Martinez IV WWTP Service Area Master Plan. The phasing of the Martinez IV plant to account for anticipated future flows and in accordance with the TPDES Interim II and Final Effluent Limitations and Monitoring Requirements is shown in Table 1-1.

Table 1-1: Flows for Each Phase of Martinez IV

Phase	Average Flow (MGD)	Peak Flow (MGD)	TPDES Permit Phase
1	0.25	1	Interim I
2	0.5	2	Interim II
3	1.0	4	Interim III*
4	2.0	8	FINAL

\*SARA to coordinate with TCEQ for Interim III permitted flows

# **CONVENTIONAL ACTIVATED SLUDGE TREATMENT PROCESS CALCULATIONS**

<b>Facility:</b>	<u>Martinez IV WWTP</u>	<b>Project:</b>	<u>SARA Martinez IV WWTP</u>
<b>Notes:</b>	<u>Phase I</u>	<b>Date:</b>	<u>8/25/2017</u>
<b>Scenario:</b>	<u>0.25 MGD Conventional Activated Sludge Plant</u>	<b>By:</b>	<u>EHK</u>
		<b>QC:</b>	<u>MUE</u>

## **1. WASTEWATER AND PLANT CHARACTERIZATION**

### Flow rates

Annual average		<u>0.25</u>	MGD
Peak 2-hour	Factor =	<u>4.0</u>	1.0 MGD

### Raw Wastewater Concentrations

		<u>Peak Month</u>
BOD (total)	mg/L	<u>200</u>
TSS	mg/L	<u>200</u>
VSS	mg/L	<u>160</u>
TKN	mg/L	<u>45</u>
NH3-N	mg/L	<u>30</u>
TP	mg/L	<u>5</u>

### Effluent Requirements

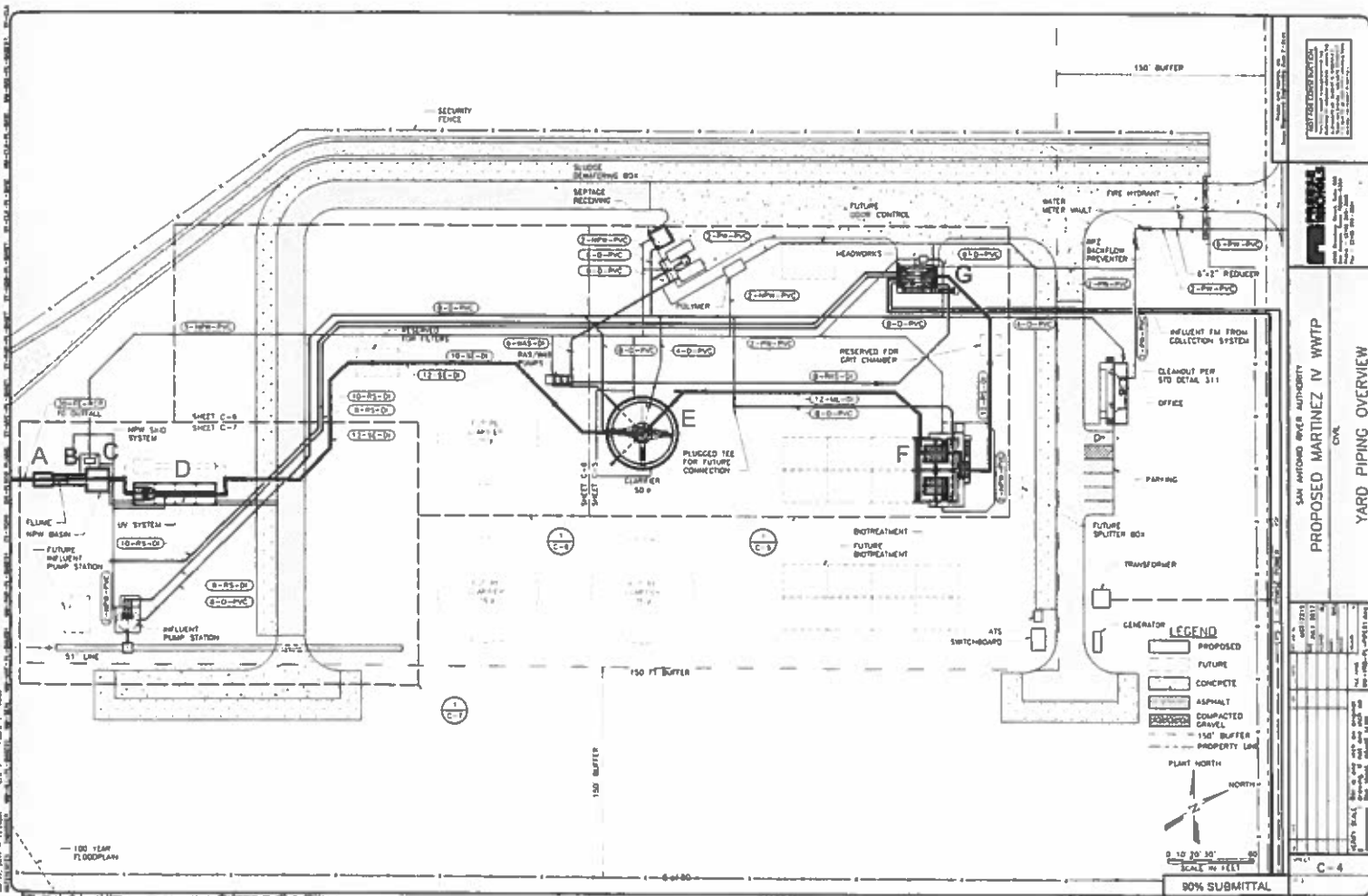
BOD	mg/L	<u>10</u>
TSS	mg/L	<u>15</u>
NH3-N	mg/L	<u>3</u>
TP	mg/L	<u>1</u>
DO	mg/L	<u>5</u>

### Select Treatment Processes from the list

Preliminary Treatment	<u>Fine Screening</u>
Primary Treatment	<u>None</u>
Biological Treatment	<u>Conv. Act. Sludge w/ Nitrification @ Min. Temp &gt; 15 C</u>
Solids Treatment	<u>Dewatering</u>

## **Section 2 – Peak Flow Hydraulic Profile**







Simon W. Freese, P.E.  
Marvin C. Nichols, P.E.

1900-1990  
1896-1969

Title: SARA Martinez IV WWTP Hydraulic Profile

Date: 15-Aug-17  
By: EK  
Chkd: ME

Flow 0.25 MGD  
Peak Flow 1 MGD  
Peak RAS Flow 0.43 MGD

100 YEAR FLOOD PLAIN EL = 564.00

10 Outfall to Parshall

### FINAL EFFLUENT PIPING

DOWNSTREAM HGL EL = 564.00

NO	DESCRIPTION	K	FLOW MGD	PIPE DIA IN	LENGTH FT	C <sub>100</sub>	VEL FPS	VEL HEAD FT	FRICT LOSS FT	MINOR LOSS FT	TOTAL
1	Pipe Exit (All Cases)	1.000	1	30			0.32	0.00		0.00	0.00
	Friction Loss in a Pipe		1	30	940	120	0.32	0.00	0.02		0.02
1	Fourty-Five (45°)	0.190	1	30			0.32	0.00		0.00	0.00
	Friction Loss in a Pipe		1	30	120	120	0.32	0.00	0.00		0.00
1	Fourty-Five (45°)	0.190	1	30			0.32	0.00		0.00	0.00
	Friction Loss in a Pipe		1	30	140	120	0.32	0.00	0.00		0.00
1	Pipe Entrance, Sharp Edged	0.500	1	30			0.32	0.00		0.00	0.00

UPSTREAM HGL EL = 564.02

### FRICTION LOSSES IN A RECTANGULAR OPEN CHANNEL (PARSHALL FLUME EFFLUENT BOX)

DOWNSTREAM WSE = 564.02

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANING n	VELOCITY FPS
1	8	560.23	1.55	0.10512	3.79	11	0.013	0.05

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	3.79380	1.94709	3.79380
2	3.79380	1.94709	3.79380
3	3.79380	1.94709	3.79380
4	3.79380	1.94709	3.79380
5	3.79380	1.94709	3.79380
6	3.79380	1.94709	3.79380
7	3.79380	1.94709	3.79380
8	3.79380	1.94709	3.79380
9	3.79380	1.94709	3.79380
10	3.79380	1.94709	3.79380

MAXIMUM WSE IN THE FLUME = 564.02

FLOOR ELEVATION = 560.23

Freeboard from Parshall Flume to Effluent Drop Box set at = 4.31

BOTTOM OF PARSHALL FLUME LINER OUTLET = 568.31

BOTTOM OF PARSHALL FLUME LINER INLET = 568.58

### PARSHALL FLUME

#### NOTE TO DESIGNER:

IF THROAT WIDTH IS EQUAL TO OR BETWEEN 10-50 FEET  
THEN INPUT THROAT WIDTH INTO COLUMN THREE.

#### NOTE TO DESIGNER:

ALL EQUATIONS ARE BASED ON FREE FLOW. USE THE SUBMERGENCE CHECK TO DETERMINE  
IF THE DESIGN CONDITION IS FREE FLOW OR SUBMERGENCE. IF SUBMERGENCE FLOW EXIST  
THEN CORRECTIONS WILL NEED TO BE MADE.

BASIN WSE DOWNSTREAM OF THE WEIR = 568.58

#### PARSHALL FLUME H, FREE FLOW

Q MGD	THROAT WIDTH FT	W FT	H <sub>f</sub> FT
1	1	6	0.5358

WSE DOWNSTREAM OF THE FLUME = 569.12

GRADE ELEVATION = 564.30

TOP OF PARSHALL FLUME = 572.33

TOTAL DEPTH = 12



Phase 1 Peak Flow - 1.0 MGD

FRICION LOSSES IN A RECTANGULAR OPEN CHANNEL (PARSHALL FLUME APPROACH CHANNEL)

DOWNSTREAM WSE = 569.12

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL.	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
1	6	568.58	1.55	0.12735	0.54	14	0.013	0.48

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	0.53580	0.45481	0.53648
2	0.53614	0.45485	0.53648
3	0.53614	0.45485	0.53648
4	0.53614	0.45485	0.53648
5	0.53614	0.45485	0.53648
6	0.53614	0.45485	0.53648
7	0.53614	0.45485	0.53648
8	0.53614	0.45485	0.53648
9	0.53614	0.45485	0.53648
10	0.53614	0.45485	0.53648

MAXIMUM WSE IN THE FLUME = 569.12

FRICION LOSSES IN A RECTANGULAR OPEN CHANNEL (NPW BASIN)

DOWNSTREAM WSE = 569.12

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL.	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
1	15	560.23	1.55	0.06913	8.89	15	0.013	0.01

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	8.88648	4.06729	8.88648
2	8.88648	4.06729	8.88648
3	8.88648	4.06729	8.88648
4	8.88648	4.06729	8.88648
5	8.88648	4.06729	8.88648
6	8.88648	4.06729	8.88648
7	8.88648	4.06729	8.88648
8	8.88648	4.06729	8.88648
9	8.88648	4.06729	8.88648
10	8.88648	4.06729	8.88648

MAXIMUM WSE IN THE FLUME = 569.12

FLOOR ELEVATION = 560.23

TOP OF CONCRETE ELEVATION = 572.23

TOTAL HEAD LOSS (OUTFALL TO NPW BASIN) = 5.12 FT

2.0 NPW Basin to UV System

DOWNSTREAM WSE = 569.12

NO	DESCRIPTION	K	FLOW MGD	PIPE DIA IN	LENGTH FT	C <sub>fr</sub>	VEL FPS	VEL HEAD FT	FRICT LOSS FT	MINOR LOSS FT	TOTAL
1	Pipe Exit (All Cases)	1.000	1	24			0.49	0.00		0.00	0.00
	Friction Loss in a Pipe			24	10	120	0.49	0.00	0.00		0.00
1	Tee Flow Through Branch	0.720	1	18			0.88	0.01		0.01	0.01
	Friction Loss in a Pipe			18	5	120	0.88	0.01	0.00		0.00
1	Elbows (90°)	0.360	1	18			0.88	0.01		0.00	0.00
	Friction Loss in a Pipe			18	2	120	0.88	0.01	0.00		0.00
1	Pipe Entrance, Sharp Edged	0.500	1	18			0.88	0.01		0.01	0.01

UPSTREAM HGL EL = 569.12

## FRICTION LOSSES IN A RECTANGULAR OPEN CHANNEL (UV EFFLUENT BOX)

DOWNSTREAM WSE = 569.14

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
1	7.83	566.32	1.55	0.10661	2.62	5.33	0.013	0.08

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	2.62103	1.57023	2.62103
2	2.62103	1.57023	2.62103
3	2.62103	1.57023	2.62103
4	2.62103	1.57023	2.62103
5	2.62103	1.57023	2.62103
6	2.62103	1.57023	2.62103
7	2.62103	1.57023	2.62103
8	2.62103	1.57023	2.62103
9	2.62103	1.57023	2.62103
10	2.62103	1.57023	2.62103

MAXIMUM WSE IN THE FLUME = 569.14

## RECTANGULAR (STRAIGHT) WEIR

Freefall = 1.33

NOTE TO DESIGNER:

HEAD OVER WEIR MUST BE LESS THAN ONE THIRD OF THE WEIR LENGTH.

IF CONDITION IS TRUE, H-CELL WILL BE GREEN. IF CONDITION IS FALSE, H-CELL WILL BE RED.

BOTTOM OF WEIR CREST EL = 570.492

Q MGD	WEIR LENGTH FT	C <sub>d</sub>	Q CFS	H FT
1.00	7.8333333	0.6	1.55	0.1521

BASIN WSE UPSTREAM OF THE WEIR = 570.64

## RECTANGULAR (STRAIGHT) WEIR (Serpentine Weir)

Freefall = 2.24

NOTE TO DESIGNER:

HEAD OVER WEIR MUST BE LESS THAN ONE THIRD OF THE WEIR LENGTH.

IF CONDITION IS TRUE, H-CELL WILL BE GREEN. IF CONDITION IS FALSE, H-CELL WILL BE RED.

BOTTOM OF WEIR CREST EL = 571.38

Q MGD	WEIR LENGTH FT	C <sub>d</sub>	Q CFS	H FT
1.00	62.5	0.6	1.55	0.0381

BASIN WSE UPSTREAM OF THE WEIR = 571.42

MAXIMUM WSE IN THE FLUME = 571.45

D

UV CHANNEL INLET &amp; OUTLET BOX FLOOR EL = 566.52

UV CHANNEL FLOOR EL = 569.46

TOP OF CONCRETE ELEVATION = 573.46

TOTAL HEAD LOSS (NPW BASIN TO UV SYSTEM) = 2.33 FT

TOTAL DEPTH = 6.94

FREEBOARD = 2.01

## 3.0 UV System to Clarifiers

UV to Filters

DOWNSTREAM HGL EL = 571.45

NO	DESCRIPTION	K	FLOW MGD	PIPE DIA IN	LENGTH FT	C <sub>rw</sub>	VEL FPS	VEL HEAD FT	FRICT LOSS FT	MINOR LOSS FT	TOTAL
1	Pipe Exit (All Cases)	1.000	1	12			1.97	0.06		0.06	0.06
1	Plug Valve	0.230	1	12			1.97	0.06		0.01	0.01
1	Friction Loss in a Pipe Ninety (90°)	0.390	1	12	5	120	1.97	0.06	0.01		0.01
1	Friction Loss in a Pipe Tee, Flow Through Branch	0.780	1	12	7	120	1.97	0.06	0.01		0.01
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.200	1	12	40	120	1.97	0.06	0.06		0.06
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.200	1	12	22	120	1.97	0.06	0.03		0.03
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.200	1	12	53	120	1.97	0.06	0.08		0.08
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.200	1	12	15	120	1.97	0.06	0.02		0.02
1	Friction Loss in a Pipe Reduction	0.093	1	12	80	120	1.97	0.06	0.12		0.12
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.210	1	10	60	120	2.84	0.12	0.22		0.22
1	Friction Loss in a Pipe Mitred Fourty-Five (45°)	0.210	1	10	70	120	2.84	0.12	0.26		0.26
1	Friction Loss in a Pipe Plug Valve	0.250	1	10	20	120	2.84	0.12	0.07		0.07
1	Pipe Entrance Sharp Edged	0.500	1	10			2.84	0.12		0.03	0.03

UPSTREAM HGL EL = 572.69

## CLARIFIER LATERAL RECTANGULAR SPILLWAY

Clarifier D (ft) = 50

BEGINNING WSE = 572.69

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
1.00	2	575.64	1.55	0.2649	0.26	79	0.032	1.61

**NOTE TO DESIGNER:**  
MANNING'S n VALUE MUST BE  
ASSUMED TO BE BETWEEN  
0.029 AND 0.032 DUE TO  
EXCESSIVE TURBULANCE OF  
PERPENDICULARLY INCOMING  
FLOW.

ATTEMPT	AVG DEPTH FT	AVG H <sub>r</sub> FT	H <sub>o</sub> FT
1	0.28489	0.20942	0.80577
2	0.62547	0.38480	0.54135
3	0.44920	0.30998	0.80323
4	0.49045	0.32908	0.58328
5	0.47715	0.32302	0.58921
6	0.48110	0.32483	0.58740
7	0.47890	0.32428	0.58795
8	0.48028	0.32444	0.58779
9	0.48015	0.32439	0.58784
10	0.48019	0.32441	0.58782

MAXIMUM WSE IN THE FLUME = 576.23

Freefall = 1.41

## TRIANGULAR (V-NOTCH) WEIR

BOTTOM OF NOTCH EL = 577.64

**NOTE TO DESIGNER:**  
WEIRS ARE COMMONLY EITHER  
60 OR 90 DEGREES

Q MGD	WEIR SPACING IN	WEIR LENGTH FT	TOTAL NO OF NOTCHES	FLOW PER NOTCH CFS	ANGLE θ	H FT
1.00	9	141.37	188	0.01	90.0	0.1004

BASIN WSE = 577.74

CLARIFIER SWD = 13.00

CLARIFIER BOTTOM EL = 564.64

CLARIFIER TROUGH BOTTOM EL = 575.64

GRADE ELEVATION = 576.74

TOP OF CONCRETE ELEVATION = 579.64

TOTAL HEAD LOSS (UV TO CLARIFIERS) = 6.29 FT

## 4.0 Final Clarifier to Aeration Basin

Final Clarifier to Aeration Basin  
Flow includes RAS

DOWNSTREAM HGL EL = 577.74

NO	DESCRIPTION	K	FLOW MGD	PIPE DIA IN	LENGTH FT	C <sub>rw</sub>	VEL FPS	VEL HEAD FT	FRICT LOSS FT	MINOR LOSS FT	TOTAL
1	Pipe Exit (All Cases)	1.000	1.43	12			2.82	0.12		0.12	0.12
1	Plug Valve	0.230	1.43	12			2.82	0.12		0.03	0.03
	Friction Loss in a Pipe		1.43	12	275	120	2.82	0.12	0.81		0.81
4	Mitred Forty-Five (45°)	0.200	1.43	12			2.82	0.12		0.10	0.10
2	Ninety (90°)	0.390	1.43	12			2.82	0.12		0.10	0.10
1	Pipe Entrance, Sharp Edged	0.500	1.43	12			2.82	0.12		0.06	0.06

UPSTREAM HGL EL = 578.96

FREEFALL = 1.82

RECTANGULAR (STRAIGHT) WEIR (Assume overflow pipe circumference as the length of the weir)

BOTTOM OF WEIR CREST EL = 580.78

**NOTE TO DESIGNER:**  
HEAD OVER WEIR MUST BE LESS  
THAN ONE THIRD OF THE WEIR  
LENGTH.  
IF CONDITION IS TRUE, H-CELL  
WILL BE GREEN. IF CONDITION  
IS FALSE, H-CELL WILL BE RED.

Q MGD	WEIR LENGTH FT	C <sub>d</sub>	Q CFS	H FT
0.716	5.23	0.6	1.11	0.1593

BASIN WSE UPSTREAM OF THE WEIR = 580.94

FRICTION LOSSES IN A RECTANGULAR OPEN CHANNEL (PHASE 1 BASIN)

DOWNSTREAM WSE = 580.94

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
0.716	21	564.38	1.11	0.04421	16.56	28	0.013	0.00

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	16.55928	6.42561	16.55928
2	16.55928	6.42561	16.55928
3	16.55928	6.42561	16.55928
4	16.55928	6.42561	16.55928
5	16.55928	6.42561	16.55928
6	16.55928	6.42561	16.55928
7	16.55928	6.42561	16.55928
8	16.55928	6.42561	16.55928
9	16.55928	6.42561	16.55928
10	16.55928	6.42561	16.55928

MAXIMUM WSE IN THE AERATION BASIN = 580.94

AERATION BASIN From Manufacturers

DOWNSTREAM HGL EL = 580.94

LOSS THROUGH STM AEROTORS

LOSS = 0.003 inches  
(Per manufacturer, negligible headloss through the STM rotors)

UPSTREAM HGL EL = 581.19

MAXIMUM WSE IN THE AERATION BASIN = 581.19

BASIN SIDE WATER DEPTH = 16.50

FLOOR ELEVATION = 564.38

FREEBOARD = 1.81

TOP OF CONCRETE ELEVATION = 583.00

TOTAL HEAD LOSS (CLARIFIER TO AERATION BASIN) = 3.45 FT

## 6.0 Aeration Basin to Headworks

Aeration Basin to Future Splitter Box

DOWNSTREAM HGL EL = 581.19

NO	DESCRIPTION	K	FLOW MGD	PIPE DIA IN	LENGTH FT	C <sub>190</sub>	VEL FPS	VEL HEAD FT	FRICT LOSS FT	MINOR LOSS FT	TOTAL
1	Pipe Exit (All Cases)	1.000	1.432	12			2.82	0.12		0.12	0.12
	Friction Loss in a Pipe		1.432	12	10	120	2.82	0.12	0.03		0.03
1	Ninety (90°)	0.390	1.432	12			2.82	0.12		0.03	0.03
	Friction Loss in a Pipe		1.432	12	20	120	2.82	0.12	0.06		0.06
1	Mitred Ninety (90°)	0.780	1.432	12			2.82	0.12		0.10	0.10
	Friction Loss in a Pipe		1.432	12	110	120	2.82	0.12	0.32		0.32
1	Mitred Forty-Five (45°)	0.200	1.432	12			2.82	0.12		0.02	0.02
	Friction Loss in a Pipe		1.432	12	45	120	2.82	0.12	0.13		0.13
1	Mitred Forty-Five (45°)	0.200	1.432	12			2.82	0.12		0.02	0.02
	Friction Loss in a Pipe		1.432	12	10	120	2.82	0.12	0.03		0.03
1	Mitred Ninety (90°)	0.780	1.432	12			2.82	0.12		0.10	0.10
	Friction Loss in a Pipe		1.432	12	20	120	2.82	0.12	0.06		0.06
1	Pipe Entrance, Sharp Edged	0.500	1.432	12			2.82	0.12		0.06	0.06

UPSTREAM HGL EL = 582.30

UPSTREAM HGL EL = 582.30

FRICTION LOSSES IN A RECTANGULAR OPEN CHANNEL (DOWNSTREAM OF SCREEN)

DOWNSTREAM WSE = 582.30

Q MGD	CHANNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
1	2	584.58	1.55	0.26489	0.26	13	0.013	2.66

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	0.26489	0.20942	0.33541
2	0.30015	0.23086	0.31312
3	0.28901	0.22421	0.31898
4	0.29193	0.22597	0.31735
5	0.29112	0.22548	0.31780
6	0.29134	0.22561	0.31767
7	0.29128	0.22558	0.31767
8	0.29128	0.22558	0.31771
9	0.29130	0.22559	0.31770
10	0.29129	0.22558	0.31770

MAXIMUM WSE IN THE AERATION BASIN = 584.90

MANUAL BYPASS SCREEN CHANNEL

(WHEN MANUAL BYPASS SCREEN IS COMPLETELY CLOGGED)

HEAD OVER CLOGGED MANUAL BYPASS SCREEN

RECTANGULAR (STRAIGHT) WEIR

BOTTOM OF WEIR CREST EL = 588.58

**NOTE TO DESIGNER:**  
HEAD OVER WEIR MUST BE LESS  
THAN ONE THIRD OF THE WEIR  
LENGTH.

IF CONDITION IS TRUE, H-CELL  
WILL BE GREEN. IF CONDITION  
IS FALSE, H-CELL WILL BE RED.

Q MGD	WEIR LENGTH FT	C <sub>d</sub>	Q CFS	H FT
1	4	0.6	1.55	0.2381

BASIN WSE UPSTREAM OF THE WEIR = 588.82

FREEBOARD = 21.14 IN

FINE SCREEN

From Manufacturers

DOWNSTREAM WSE = 584.90

MAX LOSS THROUGH FINE SCREEN

12 INCHES @ 50% Blinding

UPSTREAM WSE = 585.90

FRICITION LOSSES IN A RECTANGULAR OPEN CHANNEL (UPSTREAM OF SCREEN)

DOWNSTREAM WSE = 585.90

Q MGD	CHNNEL WIDTH FT	CHANNEL BOTTOM EL	Q CFS	CRITICAL DEPTH FT	INITIAL DEPTH FT	CHANNEL LENGTH FT	MANNING n	VELOCITY FPS
0.5	2	584.58	0.77	0.16687	1.32	13	0.013	0.29

ATTEMPT	AVG DEPTH FT	AVG HR FT	FINAL DEPTH FT
1	1.31770	0.56854	1.31789
2	1.31780	0.56856	1.31789
3	1.31780	0.56856	1.31789
4	1.31780	0.56856	1.31789
5	1.31780	0.56856	1.31789
6	1.31780	0.56856	1.31789
7	1.31780	0.56856	1.31789
8	1.31780	0.56856	1.31789
9	1.31780	0.56856	1.31789
10	1.31780	0.56856	1.31789

MAXIMUM WSE IN THE HEADWORKS CHANNEL = 585.90

G

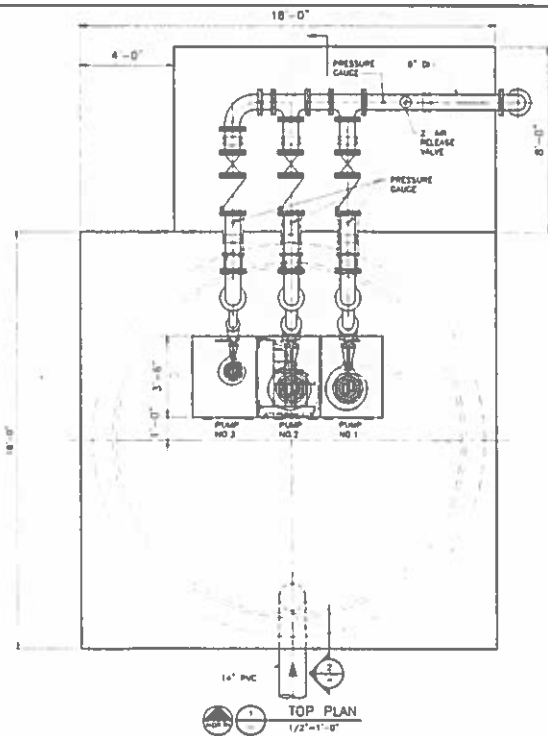
GRADE ELEVATION = 568.00

FREEBOARD = 4.68

TOP OF CONCRETE ELEVATION = 590.58

FLOOR ELEVATION = 584.58

## **Section 3 – Influent Lift Station**

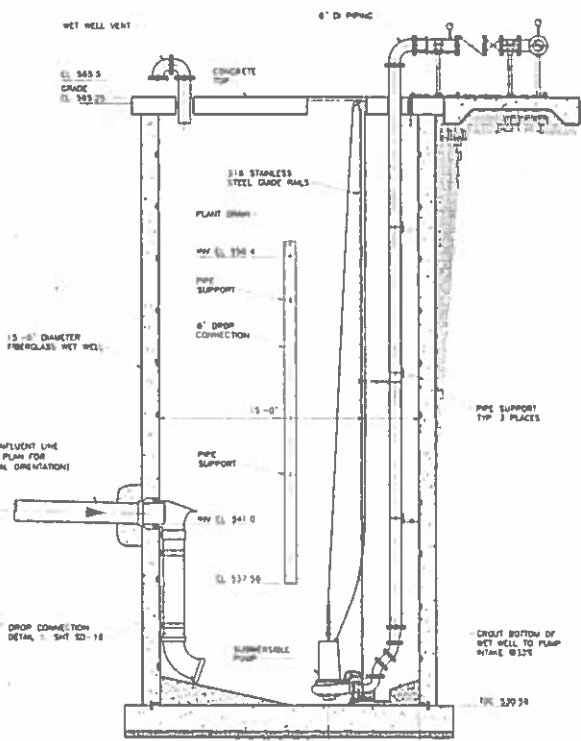


PUMP NO. 1 AND NO. 2

PUMP NO. 3

SUBMERSIBLE PUMP INFORMATION (TO BE COMPLETED WITH RECORD DRAWINGS)	
MANUFACTURER	MODEL / FLTGT
MODEL	MP 3102 SH 3-256
WATER RATED POWER	1.5 HP
DISCHARGE DIAMETER	1 1/8" NPS
WELLER SIZE OR MODEL	155 TSS
SPEED	1750 RPM
FLOW	1.5 MGD
TOTAL HEAD	54.8 FT
PUMP EFFICIENCY	75.1 %
WATER REQUIRED	1.8 FT
WATER PASS	
MOTOR EFFICIENCY @ FULL LOAD	
MOTOR POWER FACTOR @ FULL LOAD	
MOTOR NEMA CODE LETTER	

SUBMERSIBLE PUMP INFORMATION (TO BE COMPLETED WITH RECORD DRAWINGS)	
MANUFACTURER	MODEL / FLTGT
MODEL	MP 3102 SH 3-256
WATER RATED POWER	1.5 HP
DISCHARGE DIAMETER	1 1/8" NPS
WELLER SIZE OR MODEL	155 TSS
SPEED	1750 RPM
FLOW	1.5 MGD
TOTAL HEAD	54.8 FT
PUMP EFFICIENCY	75.1 %
WATER REQUIRED	1.8 FT
WATER PASS	
MOTOR EFFICIENCY @ FULL LOAD	
MOTOR POWER FACTOR @ FULL LOAD	
MOTOR NEMA CODE LETTER	



SECTION  
3/8" = 1'-0"

0 1 2  
1/2" = 1'-0"  
0 1 2  
3/8" = 1'-0"

**NOTES:**

- SEE SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION.
- SEE SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION.
- SEE SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION.

SAINT ANTONIO RIVER AUTHORITY  
PROPOSED MARTINEZ IV WWTP  
MECHANICAL

INFLUENT LIFT STATION - PLAN AND SECTION

DATE: 01/12/19  
BY: J. MARTINEZ  
CHECKED: J. MARTINEZ  
APPROVED: J. MARTINEZ

SCALE: 1/2" = 1'-0"  
3/8" = 1'-0"

M-3

90% SUBMITTAL



### **SARA Martinez IV WWTP Influent Lift Station**

Influent flows to the Martinez IV wastewater treatment plant will come from two sources: (1) influent flows to the Martinez III WWTP diverted to Martinez IV through a 51" gravity line and (2) new developments in the Martinez IV service area. Flows from the anticipated developments in the area will be serviced by a Lift Station off Abbott Road to transport flows to the headworks of the plant. Flows from these new developments are not anticipated until the later phases of the Martinez IV expansions. Initially, all flows to the plant will be from the Martinez III wastewater treatment plant. These flows will collect at the plant influent lift station and pumped to the headworks. The flows expected from Martinez III for each Phase of Martinez IV expansion, and thus the phasing of the lift station, is shown below in Table 3-1.

**Table 3-1: Martinez IV Influent Lift Station Phasing**

Phase	Total Plant Flow		Martinez III Flow (Plant Lift Station Phasing)	
	Average Flow (MGD)	Peak Flow (MGD)	Average Flow (MGD)	Peak Flow (MGD)
1	0.25	1	0.25	1
2	0.50	2	0.50	2.0
3	1.0	4	0.75	3.0
4	2.0	8	3.0	6.0

The lift station wet well to be constructed in Phase 1 of the Martinez IV plant will be designed to handle the peak flow up to Phase III of the treatment plant expansion, with pumps replaced for each phase as greater flow is required. At buildout, a second lift station will need to be constructed to meet peak flow conditions.

The design calculations for the plant influent lift station are described in this section. The wet well is sized for Phase 3 peak flow of 3.0 MGD (2,083 GPM) and the pumps are sized for the Phase 1 peak flow of 1 MGD (694 GPM), with a jockey pump available for the lower flow conditions of 0.25 MGD (174 GPM). The design calculations for the Abbott road lift station servicing the new developments are in Section 12.

## WET WELL SIZING

Lift Station Design  
Triplex Circular Wet Well Sizing

Project: SARA Martinez IV Influent Lift Station  
Date: 8/25/2017  
By: JMM

LEGEND: Input  
Result

Input*		
Number of Pumps (Total)	3	
Number of Pumps (Duty)	1	
Maximum Flow ( $Q_{max}$ )*	2,083	gpm
Width of Single Pump ( $D_p$ )	18	in
Largest Pump Min. Cycle Time (See Table C.5 per TCEQ)	10	min
Flow that Pump 1 Intersects the System Curve (See System Curves Tab)	1,146	gpm
Invert of Lowest Influent Sewer	540	ft
Natural Ground Elevation	565	ft
Largest Pump Inlet Diameter	6	in
Space Between 3rd Pump On (High Water) and Invert of Influent Sewer	0.5	ft
Reserve Head Space to High Water Alarm	0.5	ft
LS Base Thickness	1.5	ft
Screen Size	#16 Screen (0.018" wire)	

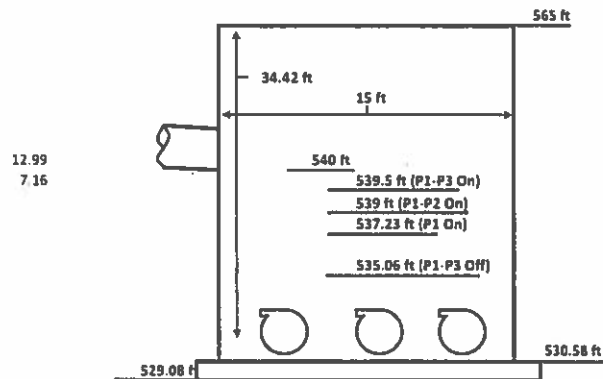
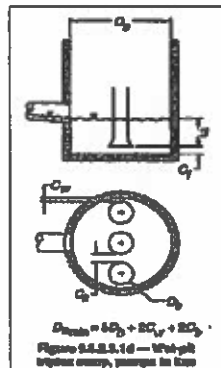
Selected Diameter**	15	ft
---------------------	----	----

\*Wet well sized to handle build out flow of 3 MGD. Phase 1 Initial peak flow is 1 MGD.

\*\*adjust this value until a desired depth and diameter is achieved

Results		
Diameter	15	ft
Depth	34.42	ft
Pump 1-Pump 3 On Level	539.5	ft
Pump 1-Pump 2 On Level	539	ft
Pump 1 On Level	537.2	ft
Pump 1-Pump 3 Off Level	535.06	ft
Large Pump Submergence (S)	4.23	ft
Clearance from Bottom (C)	0.25	ft
Elev. of Bottom of Wet Well	530.58	ft
Depth of Lift Station Excavation	35.92	ft
Minimum Diameter of Vent	11	in

Quantities for Cost Estimation		
Volume of Concrete (12" Top)	6.54	CY
Volume of Concrete (12" Walls)	64.07	CY
Volume of Concrete (18" Base, 1' Footing)	12.61	CY
Volume of Lift Station (to Consider for Excavation)	225.26	CY



Calculations

A. Lift Station Characteristics

Number of Pumps (Total)	3		
Number of Pumps (Duty)	1		
Maximum Flow ( $Q_{max}$ ) <sup>a</sup>	2,083	gpm	
Width of Single Pump ( $D_p$ )	18	in	HI 9.8.2.3.2.6
Inlet Bell Clearance ( $C_b$ )	0.375	ft	HI 9.8.2.3.2.4
Wall Clearance ( $C_w$ )	0.375	ft	HI 9.8.2.3.2.3
Minimum Sump Diameter ( $D_{sump}$ )	6.00	ft	HI 9.8.2.3.2.5
Selected Diameter ( $D_s$ )	15	ft	
Pump Flow Rate	2,083	gpm	

B. Lift Station Calculations

Largest Pump Min. Cycle Time	10	min	Table C.5 - 30 TAC §217.60(b)(7)
Min. Active Volume Req'd	696.3	ft <sup>3</sup>	
Min. Depth of Active Volume	3.94	ft	
Flow that Pump 1 Intersects the System Curve (See System Curves Tab)	1,146	gpm	
Wet Well Volume Pump 2 Can Pump	313.3	ft <sup>3</sup>	
Pump 2 Pumping Range	1.8	ft	

C. Pump On/Off Levels

Invert Elev. of Lowest Influent Sewer	540	ft	
Space Between 3rd Pump On (High Water) and Invert of Influent Sewer	0.5	ft	
Reserve Head Space to High Water Alarm	0.5	ft	
Pump 1-Pump 3 On Level	539.5	ft	
Pump 1-Pump 2 On Level	539	ft	
Pump 1 On Level	537.2	ft	
Pump 1-Pump 3 Off Level	535.06	ft	

D. Lift Station Elevations

Natural Ground Elevation	565	ft	
Largest Pump Inlet Diameter	6	in	
Largest Pump Intake Velocity	13.00	ft/s	HI Eq. 9.8.2.1.4-1
Froude No.	3.24		HI Eq. 9.8.2.1.4-2
Largest Pump Submergence (S)	4.23	ft	HI 9.8.3.3.4
Clearance from Bottom ( $C_b$ )	0.25	ft	HI 9.8.2.3.2.2
Elev. of Bottom of Wet Well	530.58	ft	
LS Base Thickness	1.5	ft	
Depth of Lift Station	34.42	ft	
Depth of Lift Station Excavation	35.92	ft	
Volume of Concrete (12" Top)	6.54	CY	
Volume of Concrete (12" Walls)	64.07	CY	
Volume of Concrete (18" Base, 1' Footing)	12.61	CY	
Volume of Lift Station (to Consider for Excavation)	225.26	CY	

E. Ventilation

Max. Flow Entering Wet Well <sup>a</sup>	2,083	gpm	
Max. Flow Entering Wet Well	279	cfm	
Design Max. Flow	600	fpm	30 TAC §217.60(d)(1)(C)
Percent Open Area of Screen	50	%	
Percent Closed Area of Screen	50	%	
Vent Area Req'd	100	in <sup>2</sup>	
Minimum Diameter of Vent	11	in	30 TAC §217.60(d)(1)(D)

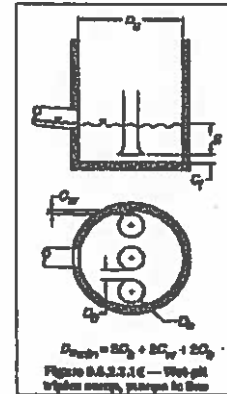


Table C.5 - Minimum Pump Cycle Times<sup>1</sup>

Pump Horsepower	Min. Cycle Times (minutes)
< 50	6
50-100	10
> 100	15

<sup>1</sup>30 TAC §217.60(b)(7)

Equation C.4.<sup>2</sup>

$$I' = \frac{T \times Q}{4 \times 7.48}$$

Where:

V = Active volume (cubic feet)

Q = Pump capacity (gallons per minute)

T = Cycle time (minutes)

7.48 = Conversion factor (gallons/cubic foot)

<sup>2</sup>30 TAC §217.60(b)(8)

Open Areas	
Screen Size	%
#16 Screen (0.018" wire)	50
#14 Screen (0.020" wire)	51
#12 Screen (0.023" wire)	52
#10 Screen (0.025" wire)	56
#8 Screen (0.028" wire)	60
1/4" Mesh (0.032" wire)	76
1/2" Mesh (0.063" wire)	76

## WET WELL PHASE 1 OPERATION

Lift Station Design  
Triplex Circular Wet Well Sizing

Project: SARA Martinez IV Influent Lift Station  
Date: 8/25/2017  
By: JMM

LEGEND:	Input
	Result

Input*		
Number of Pumps (Total)	3	
Number of Pumps (Duty)	1	
Maximum Flow ( $Q_{max}$ )	2,083	gpm
Width of Single Pump ( $D_p$ )	18	in
Largest Pump Min. Cycle Time (See Table C.5 per TCEQ)	10	min
Flow that Pump 1 Intersects the System Curve (See System Curves Tab)	1,146	gpm
Invert of Lowest Influent Sewer	540	ft
Natural Ground Elevation	565	ft
Largest Pump Inlet Diameter	6	in
Space Between 3rd Pump On (High Water) and Invert of Influent Sewer	0.5	ft
Reserve Head Space to High Water Alarm	0.5	ft
LS Base Thickness	1.5	ft
Screen Size	#16 Screen (0.018" wire)	

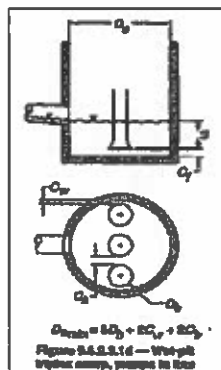
Selected Diameter**	15	ft
---------------------	----	----

\*Wet well sized to handle build out flow of 3 MGD. Phase 1 Initial peak flow is 1 MGD.

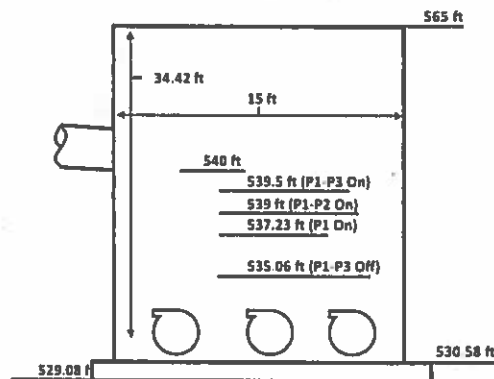
\*\*adjust this value until a desired depth and diameter is achieved

Results		
Diameter	15	ft
Depth	34.42	ft
Pump 1-Pump 3 On Level	539.5	ft
Pump 1-Pump 2 On Level	539	ft
Pump 1 On Level	537.2	ft
Pump 1-Pump 3 Off Level	535.06	ft
Large Pump Submergence (S)	4.23	ft
Clearance from Bottom (C)	0.25	ft
Elev. of Bottom of Wet Well	530.58	ft
Depth of Lift Station Excavation	35.92	ft
Minimum Diameter of Vent	11	in

Quantities for Cost Estimation		
Volume of Concrete (12" Top)	6.54	CY
Volume of Concrete (12" Walls)	64.07	CY
Volume of Concrete (18" Base, 1' Footing)	12.61	CY
Volume of Lift Station (to Consider for Excavation)	225.26	CY



12.99  
7.16



Calculations

A. Lift Station Characteristics

Number of Pumps (Total)	3	
Number of Pumps (Duty)	1	
Maximum Flow ( $Q_{max}$ ) <sup>a</sup>	2,083	gpm
Width of Single Pump ( $D_p$ )	18	in
Inlet Bell Clearance ( $C_b$ )	0.375	ft
Wall Clearance ( $C_w$ )	0.375	ft
Minimum Sump Diameter ( $D_{s_{min}}$ )	6.00	ft
Selected Diameter ( $D_s$ )	15	ft
Pump Flow Rate	2,083	gpm

HI 9.8.2.3.2.6  
HI 9.8.2.3.2.4  
HI 9.8.2.3.2.3  
HI 9.8.2.3.2.5

B. Lift Station Calculations

Largest Pump Min. Cycle Time	10	min
Min. Active Volume Req'd	696.3	ft <sup>3</sup>
Min. Depth of Active Volume	3.94	ft
Flow that Pump 1 Intersects the System Curve (See System Curves Tab)	1,146	gpm
Wet Well Volume Pump 2 Can Pump	313.3	ft <sup>3</sup>
Pump 2 Pumping Range	1.8	ft

Table C.5 - 30 TAC §217.60(b)(7)

C. Pump On/Off Levels

Invert Elev. of Lowest Influent Sewer	540	ft
Space Between 3rd Pump On (High Water) and Invert of Influent Sewer	0.5	ft
Reserve Head Space to High Water Alarm	0.5	ft
Pump 1-Pump 3 On Level	539.5	ft
Pump 1-Pump 2 On Level	539	ft
Pump 1 On Level	537.2	ft
Pump 1-Pump 3 Off Level	535.06	ft

D. Lift Station Elevations

Natural Ground Elevation	565	ft
Largest Pump Inlet Diameter	6	in
Largest Pump Intake Velocity	13.00	ft/s
Froude No.	3.24	
Largest Pump Submergence (S)	4.23	ft
Clearance from Bottom ( $C_b$ )	0.25	ft
Elev. of Bottom of Wet Well	530.58	ft
LS Base Thickness	1.5	ft
Depth of Lift Station	34.42	ft
Depth of Lift Station Excavation	35.92	ft
Volume of Concrete (12" Top)	6.54	CY
Volume of Concrete (12" Walls)	64.07	CY
Volume of Concrete (18" Base, 1' Footing)	12.61	CY
Volume of Lift Station (to Consider for Excavation)	225.26	CY

HI Eq. 9.8.2.1.4-1  
HI Eq. 9.8.2.1.4-2  
HI 9.8.3.3.4  
HI 9.8.2.3.2.2

E. Ventilation

Max. Flow Entering Wet Well <sup>a</sup>	2,083	gpm
Max. Flow Entering Wet Well	279	cfm
Design Max. Flow	600	fpm
Percent Open Area of Screen	50	%
Percent Closed Area of Screen	50	%
Vent Area Req'd	100	in <sup>2</sup>
Minimum Diameter of Vent	11	in

30 TAC §217.60(d)(1)(C)  
30 TAC §217.60(d)(1)(D)

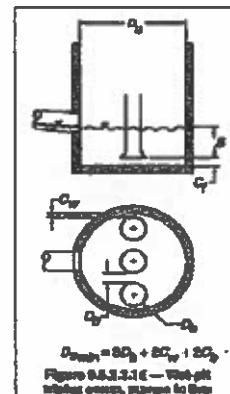


Table C.5 - Minimum Pump Cycle Times<sup>1</sup>

Pump Horsepower	Min. Cycle Times (minutes)
< 50	6
50-100	10
> 100	15

<sup>1</sup>30 TAC §217.60(b)(7)

Equation C.4.<sup>1</sup>

$$T = \frac{T \times Q}{4 \times 7.48}$$

Where:

V = Active volume (cubic feet)  
Q = Pump capacity (gallons per minute)  
T = Cycle time (minutes)  
7.48 = Conversion factor (gallons/cubic foot)  
<sup>1</sup>30 TAC §217.60(b)(8)

Open Areas	
Screen Size	%
#16 Screen (0.018" wire)	50
#14 Screen (0.020" wire)	51
#12 Screen (0.023" wire)	52
#10 Screen (0.025" wire)	56
#8 Screen (0.028" wire)	60
1/4" Mesh (0.032" wire)	76
1/2" Mesh (0.063" wire)	76

## LIFT STATION EMERGENCY STORAGE CALCULATION

### From the San Antonio Water System Guidelines:

2. **Emergency Storage:** Size the wet well to provide sufficient volume within the wet well, excluding the capacity of sanitary collection system upstream from the lift station. Emergency storage capacity shall be supported by engineering calculations. Design wet well emergency storage for the following capacities, using Average Daily Flow:

For lift stations within Edwards Aquifer Recharge and Contributing Zones: 60-minutes of wet well storage plus a generator, or

2) For lift stations over the Edwards Aquifer Transition Zone: SAWS staff will evaluate the site location, water stream proximity, remoteness, and geographical features to determine if the lift station site shall be treated as if it were over the EARZ, or

3) For lift stations outside the Edwards Aquifer Recharge, Contributing and Transition Zones: 60-minutes of wet well storage plus a generator, or 120 minutes of wet well storage without generator. SAWS will evaluate and determine if a generator is required. (See Section J "Emergency Provisions").

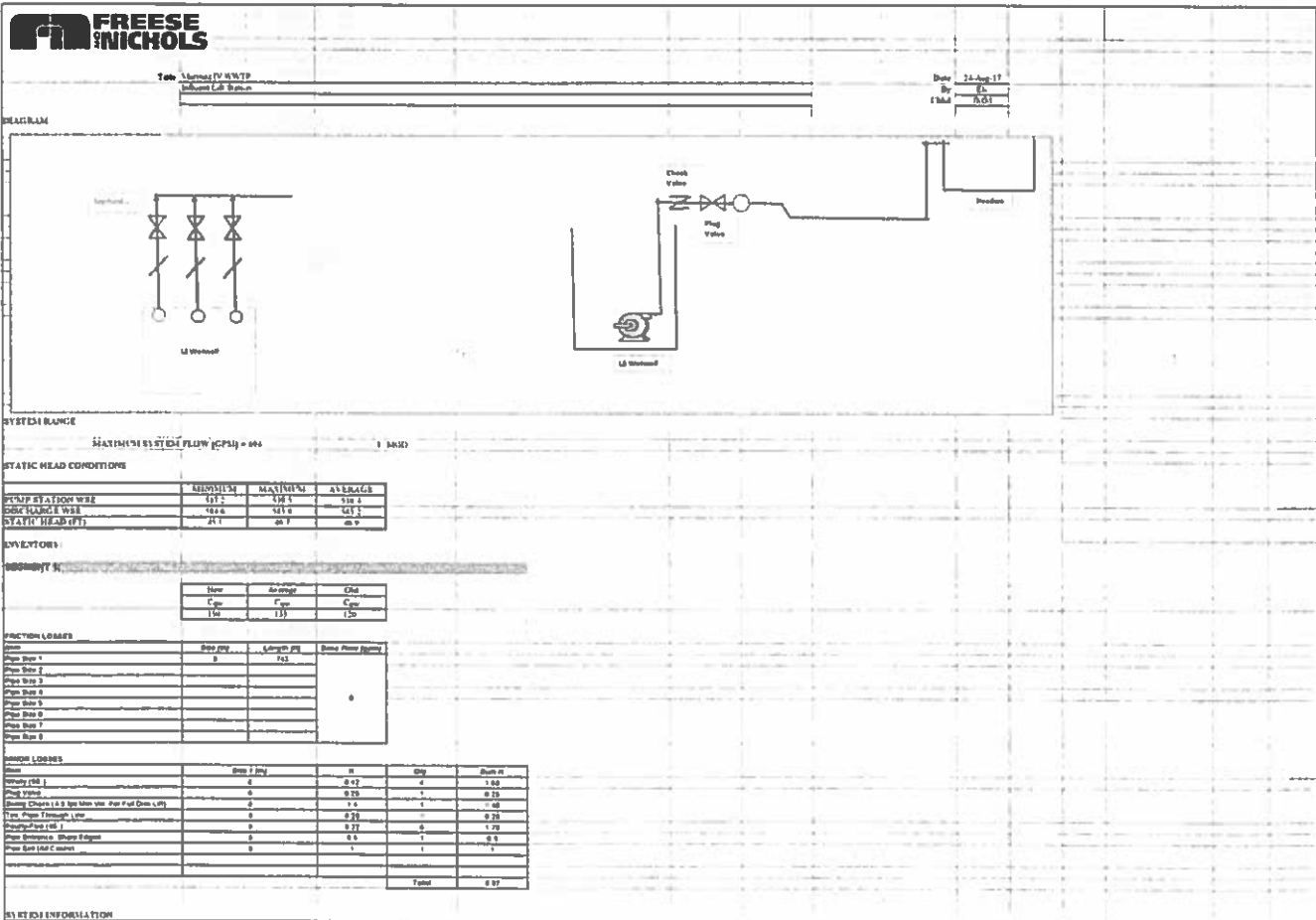
For calculation purposes, the wet well emergency storage level begins at the Lead Pump On level until wet well level is 2 feet below spill level elevation. Spill level elevation is determined by the manhole upstream of wet well with the lowest top elevation, or by the wet well top slab elevation, whichever is lower.

	PHASE 1	BUILDOUT
Average Flow (MGD)	0.25	0.75
Average Flow (CFS)	0.39	1.16
Lead Pump On (ft)	534.28	537.2
Spill Elevation (ft)	564.2	564.2
Diameter (ft)	15	15
Storage Volume (cu. ft.)	5286	4771
Storage Time	228	69




## **Section 4 – Influent Lift Station System Curve Calculations**

# SYSTEM - PHASE 1



## SYSTEM PHASE 1

[illegible]



Title:

Date: 25-Aug-17

By: EK

Chkd: JM

PUMP INFO

Pump No. 1:

Flow

System

HP 3102AHS-244

TRUCKY PUMP # 0.25 MOD PLANT AVE FLOW

FLOW (GPM)	HEAD (FT)	EFFICIENCY (%)	PUMPS IN PARALLEL				
			2 PUMPS	3 PUMPS	4 PUMPS	5 PUMPS	6 PUMPS
0	105						
50	93						
100	81						
150	74						
200	65						
250	56						
300	47						
350	36						
400	25						
450	14						

Pump No. 2:

Flow

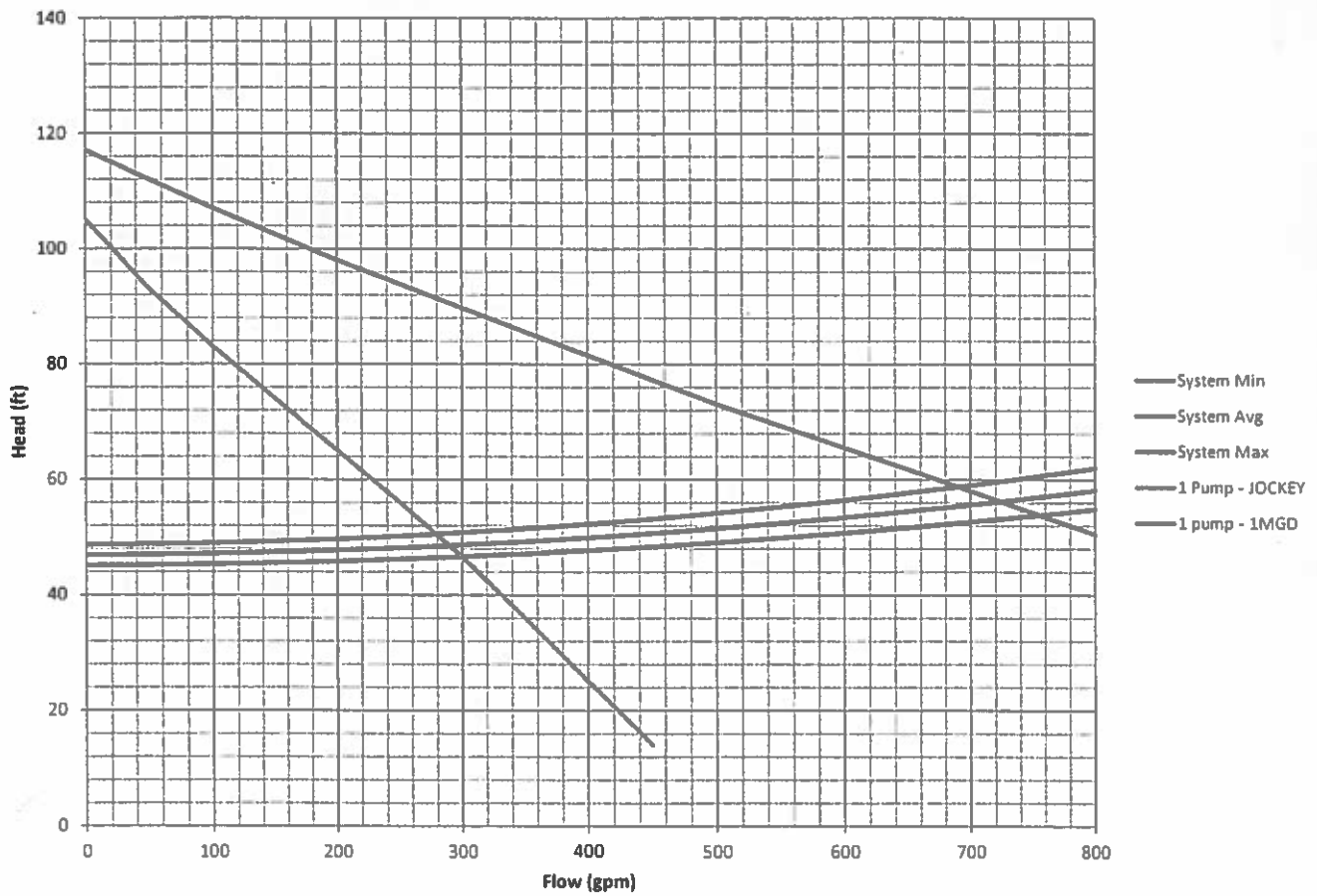
System

HP 3102AHS-244

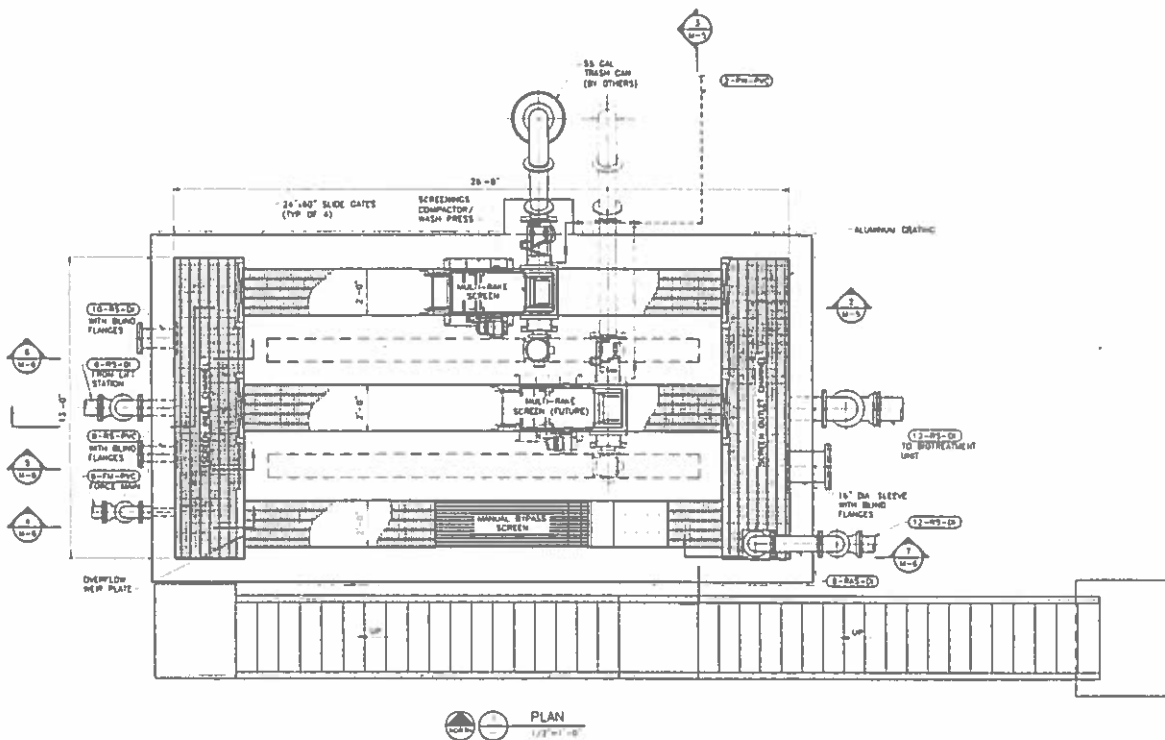
PEAK FLOW PUMP # 1 MOD PLANT PEAK FLOW

FLOW (GPM)	HEAD (FT)	EFFICIENCY (%)	PUMPS IN PARALLEL				
			2 PUMPS	3 PUMPS	4 PUMPS	5 PUMPS	6 PUMPS
0	117						
100	107						
200	98						
300	90						
400	82						
500	73						
600	66						
700	58						
800	51						
900	43						

**Plant Influent Lift Station System-Head Curve**



## **Section 5 - Headworks**



PLAN  
1/2" = 1'-0"

**NOTES:**  
1. SEE GENERAL NOTES FOR DETAILS.  
2. SEE GENERAL NOTES FOR MATERIALS.  
3. SEE GENERAL NOTES FOR CONSTRUCTION.

**PROPOSED MARTINEZ IV WTP**  
MECHANICAL

**HEADWORKS - PLAN**

NO.	DATE	BY	CHKD	APP'D	DESCRIPTION
1	11/11/11	JM			ISSUED FOR PERMIT
2	11/11/11	JM			REVISED FOR 90% SUBMITTAL
3	11/11/11	JM			REVISED FOR 90% SUBMITTAL
4	11/11/11	JM			REVISED FOR 90% SUBMITTAL
5	11/11/11	JM			REVISED FOR 90% SUBMITTAL
6	11/11/11	JM			REVISED FOR 90% SUBMITTAL
7	11/11/11	JM			REVISED FOR 90% SUBMITTAL
8	11/11/11	JM			REVISED FOR 90% SUBMITTAL
9	11/11/11	JM			REVISED FOR 90% SUBMITTAL
10	11/11/11	JM			REVISED FOR 90% SUBMITTAL

## 2. HEADWORKS

### Description:

The headworks will consist of a three channels. Two channels will be for fine screens and one channel will be for bypass. The fine screen channels will each have a peak flow capacity for 4.0 MGD. One (1) fine screen of max. capacity of 4.0 MGD will be installed in this phase. The HUBER Rakemax (c) Step Screen with a washer compactor unit for screenings was selected for this plant given the owners experience operating these units at their other installations. The second fine screen will be installed in the future. The bypass channel will have capacity for the ultimate 2-hour peak flow of 8.0 MGD.

Grit Removal was considered during preliminary design but was not installed during this phase to save on the overall project cost. Space was left in the site plan and hydraulic profile for the future addition of grit removal.

### A. Fine Screens

TCEQ Design Criteria (Chapter 217.122 Fine Screening Devices)

The clear openings in a fine screen must be less than 0.25 inch.

A fine screen must meet the manufacturer's recommendations with respect to velocity and head loss through the fine screen.

Screen Type:

Manufacturers:

Number of Fine Screens:

Capacity (Peak) per Screen:

Opening Size:

Width:

Depth:

Length:

Conv. Chain & Rake, Step Screen (Huber Rakemax)  
Headworks, Huber

1	
4	MGD
0.25	inch
2	ft
6	ft
6.1	ft

### B. Bypass Screen

TCEQ Design Criteria (Chapter 217.121, Subchapter E)

Bypass channels, sized to handle the two-hour peak flow of the facility, shall be provided to bypass flow around any coarse screening device.

Velocity through the coarse screen bar rack shall be between one and three feet per second

Each grit removal unit must include:

- (1) an emergency overflow to accept flow when grit removal unit is off-line; and
- (2) a means of diverting flow to the emergency overflow

Max. Flow through bypass screen =

8.00 MGD

Velocity required by TCEQ

3.00 ft/s

Area of screen opening required

4.13 ft<sup>2</sup>

Percent of screen clogged due to blinding

30% \*Assumed

Area of screen required with blinding

5.89 ft<sup>2</sup>

Clear spacing between bars

1.00 in

Individual bar thickness

0.25 in

Bar + clear spacing

1.25 in

Assume Width:

2.00 ft

Slope from vertical

60.00 deg

19.2

Width of clear opening:

1.6 ft

Length of manual screen

4.0 ft

Required Depth of channel:

4.00 ft



## **Section 6 – Activated Sludge Calculations**

### SARA Martinez IV WWTP Activated Sludge

The Martinez IV WWTP utilizes conventional activated sludge treatment with nitrification. In the Request for Proposals, the use of either the H2O Innovation Bio-Wheel or WesTech STM-Aerotator was specified. The STM-Aerotator was selected as the more cost-effective installation with more recorded installations of WWTP of similar size. The STM-Aerotator achieves aeration of the basins by capturing atmospheric air with each rotation, drawing the air into the basin, and slowly releasing the captured air as coarse bubble aeration. The STM-Aerotator wheels are controlled on a variable frequency drive to increase or decrease the dissolved oxygen based on actual oxygen demand. Additionally, the wheels themselves provide a large surface area for fixed film growth to facilitate the treatment process.

The Martinez IV plant will include a single train with two cells during Phase One of operations. Each cell is designed for 0.125 MGD average flow and 0.5 MGD peak flow. As the plant expands, the number of cells will expand as shown in Figure 6-1 below. At final buildout, an additional train identical to that installed for Phase III will be required.

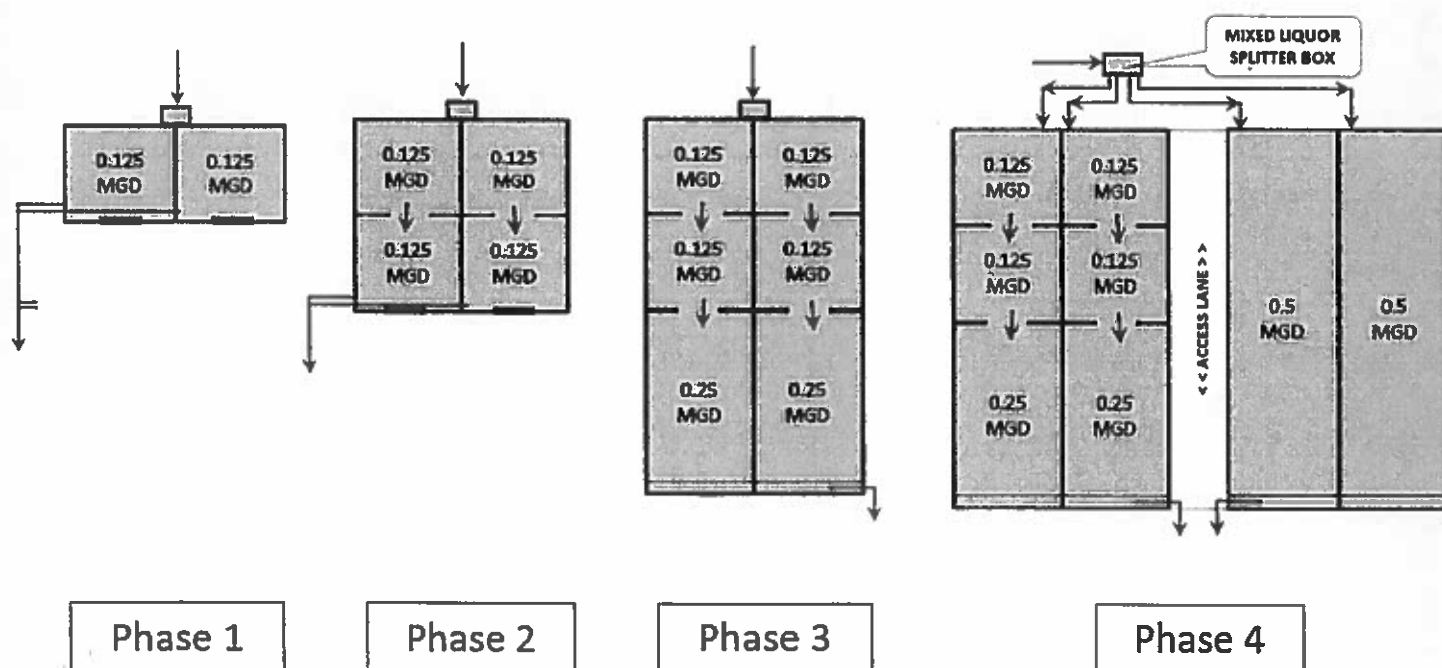
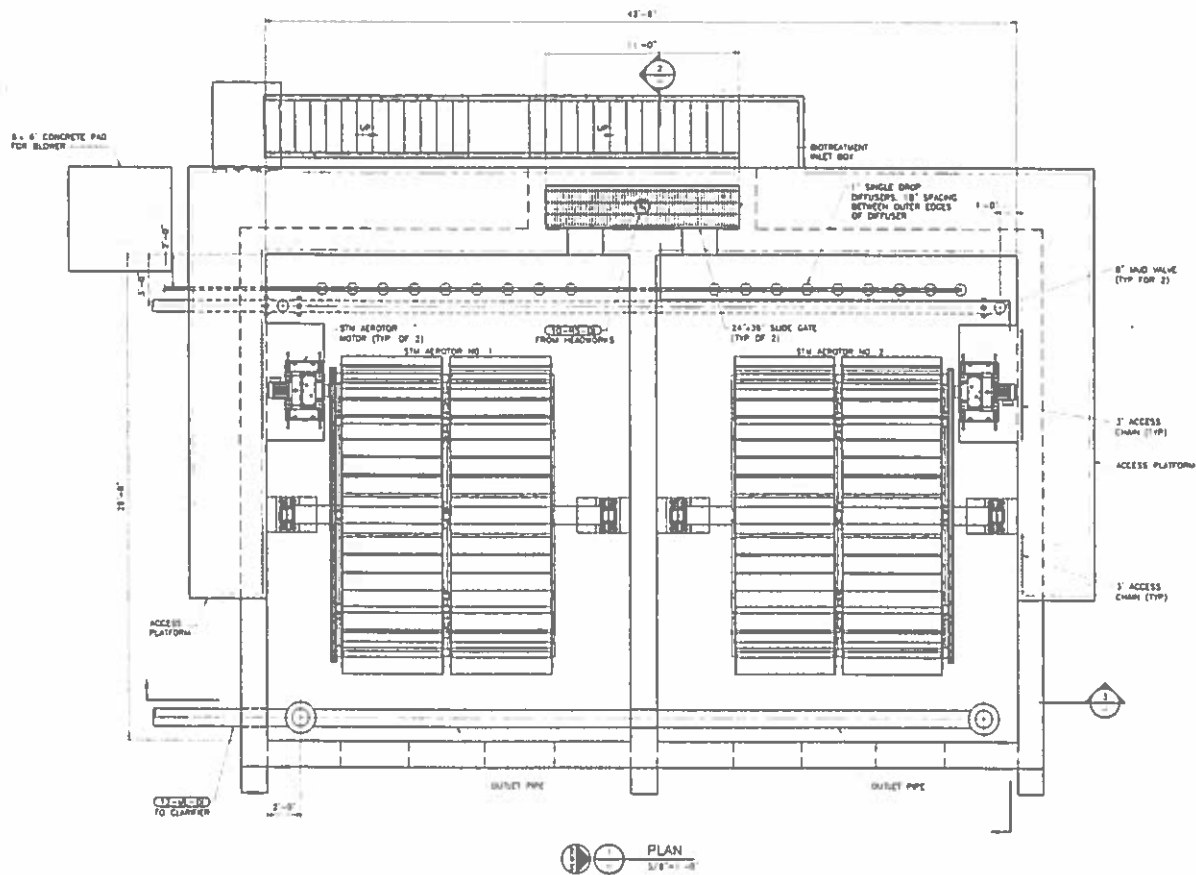


Figure 6-1: Martinez IV Activated Sludge Phasing

Additional horizontal space was provided before the STM-Aerotator for the installation of drop disk diffusers. These diffusers are not needed for treatment and would not be able to effectively aerate the basins by themselves. Rather, they have been installed per SARA's request.

The subsequent pages include FNI and WesTech process calculations. FNI's process calculations confirm that the size of the aeration basins is appropriate to treat the anticipated BOD loading. WesTech's calculations provide details on the STM Aerotor wheel design.



5. 6' CONCRETE PAD  
FOR MOTOR

POSTTREATMENT  
WALLET BOX

1. SINGLE DROP  
DIFFUSERS, 18" SPACING  
BETWEEN OUTER EDGES 1-0  
OF DIFFUSER

8" INO VALVE  
(FOR 800 31)

J. ACCF22  
Epub 2022

#### ACCESS PLATFORM

3' ACCESS  
CHAIN (TYPE)

ACCESS  
PLATFORM

**QUESTIONS**

OUTLET PIPE

output 

STM AEROTOR

5744 ABSTRACT NO. 1

24'x30' SLIDE GATE

Sim. Addressed No. 2

28 of 60

$$3/0^+ = 1 = 0$$

90% SUBMITTAL

PROPOSED MARTINEZ IV WWTP  
MECHANICAL  
BIOTREATMENT PLAN

[illegible]

## FNI PROCESS CALCULATIONS

### 3. ACTIVATED SLUDGE BASIN

TCEQ Design Criteria (Chapter 217.154, Subchapter E)

Based on the calculated organic load, the aeration basin volume must be designed to ensure that the organic loading on the aeration basin does not exceed the organic loading rates in the following table: Figure: 30 TAC §217.154(b)(2)

Description:

Conv. Act. Sldg w/ Nitrification, @ Min. Temp > 15 C

#### A. TCEQ Design Criteria (Chapter 217, Subchapter F)

Aeration Basin Max. Organic Loading =

35 lb BOD/1000 ft<sup>3</sup>-d

Aeration basin min. depth for diffusers =

10 ft

Min. number of basins (for flow > 0.4 MGD) =

2

**Table F.1 - Design Organic Loading Rates for Sizing Aeration Basins Based on Traditional Design Methods**

Process	Applicable Permit Effluent Sets Concentration milligrams per liter (mg/l)			Maximum Organic Loading Rate Pounds BOD <sub>5</sub> /day/1,000 cubic feet (lbs/day/1,000cf)
	Five-day Biochemical Oxygen Demand (BOD <sub>5</sub> )	Total Suspended Solids (TSS)	Ammonia Nitrogen	
Conventional activated sludge process with nitrification when reactor temperatures exceed 15° C	10	15	3, 2, or 1	35

$$RAF = \frac{(PPD \text{ BOD}_5) \times (Q_2 / \text{lb BOD}_5)}{WOTE \times 0.23 \times 0.075 \times 1440}$$

Where

RAF = Required Airflowrate (standard cubic feet per minute (SCFM))

PPD BOD<sub>5</sub> = Influent Organic Load in Pounds per Day

0.23 = lb O<sub>2</sub>/lb air @ 20° C

1440 = minutes/day

0.075 = lb air/cubic foot (cf)

WOTE = Wastewater Oxygen Transfer Efficiency (decimal)

If the design inlet temperature is above 24° C, the specific weight of air must be adjusted to the specific weight at the intake temperature.

(Figure: 30 TAC 217.154(b)(2))

Primary Treatment BOD Credit

0%

BOD concentration to aeration basin =

Peak Month  
mg/L 200

Select \Design BOD Loading Rate =

35 lb BOD/1000 ft<sup>3</sup>-d

Total peak BOD loading =

417 lb/d

Total aeration volume required =

11,915 ft<sup>3</sup>

#### B. Aeration Basins Sizing

Conventional Rectangular Basin Configuration

Required number of aeration basins =

2

Side water depth of basins =

16.5 ft

Volume of each basin =

5,958 ft<sup>3</sup>

Surface area of each basin =

362 ft<sup>2</sup>

No. of Basins Provided =

2

Length of each basin =

23 ft

Width of each basin =

21 ft

Depth of each basin =

16.5 ft

Actual volume of each basin =

7,970 ft<sup>3</sup>

Aeration required (TCEQ Method)

Per Chapter 217.155 "Aeration Equipment Sizing" Equation F.2

Equation F.2.

$$O_2R = \frac{1.2(BOD_5) + 4.3(NH_3 - N)}{BOD_5}$$

Where:

$O_2R$  = Oxygen requirement, lb  $O_2$ /lb  $BOD_5$   
 $BOD_5$  =  $BOD_5$  concentration, mg/L  
 $NH_3-N$  = Ammonia nitrogen, mg/L

$O_2R$  = 2.17 lb  $O_2$ /lb  $BOD_5$   
904 lb  $O_2$ /d

**C. Mechanical Aeration Equipment Sizing**

TCEQ Requirements 217.155(c)(2-3)

Required Mixing Horsepower = 0.75 hp / 1,000 CF

Aeration Requirements

BOD Loading =	lb/d	Peak Month
Required $O_2R$ =	lb $O_2$ /lb $BOD_5$	2.17
Oxygen Loading =	lb $O_2$ /day	904

Mixing Requirements

Volume of each aeration basin =	ft <sup>3</sup>	7,970
Mi. required horsepower for mixing =	HP	6
Horsepower for mixing provided in each basin =	HP	10

Mixing in the aeration basin is provided WestTech STM Aerotor. Refer to process calculations of the STM aerotor attached

## WESTECH PROCESS CALCULATIONS

# STM Aerotor Process Design

## Project Information

Project Name:	SARA Design Plant	Project Number:	23193A
Engineer:	Freese & Nichols	Completed by:	MA163
Date:	9/12/2018	Checked by:	HA23

## Design Parameters

### Influent Wastestream

Q	0.250	MGD
Hydraulic Peak Factor	4.00	
BOD	300	mg/L
TSS	300	mg/L
TKN	45.0	mg/L
NO3	0	mg/L

### Site Specific Information

Tmin	15.0	°C
Tmax	25.0	°C
Elevation	200	ft.
MLSS	4000	mg/L
Residual DO (C <sub>0</sub> )	2.0	mg/L
Simult. nit/denit	10%	

### Effluent Limits

BOD	10	mg/L
TSS	15	mg/L
NH <sub>3</sub>	3.0	mg/L
ORG N	1.25	mg/L

### Design Information

SRT	12.0	days
Yield	0.75	lb TSS/lb BOD
C <sub>s</sub> temp/elev	8.12	mg/L
C <sub>s</sub> mid-depth	9.61	mg/L
Alpha	0.75	
Beta	0.95	
N ASSIM	6.0%	
Oxygen coef	1.20	lb BOD/lb O <sub>2</sub>
Oxygen coef	4.60	lb NH <sub>3</sub> /lb O <sub>2</sub>

## STM Design

No. of Basins	2		Wheel Diameter	4.8	m
Wheels per Basin	1		Wheel Length	3.50	m
Basin Length	28.00	ft	No. Aux Pipes per \	8	
Basin Width	21.00	ft	Paddle (Y, N)	Y	
Basin Water Depth	16.50	ft	FF Surface Area	17922	sq-ft per wheel
			Density	3.69	lb SS / 1000 ft <sup>2</sup>



## STM Aerotor Process Design

---

### Process Calculations

---

#### Aerobic Volume Calculations

$$\begin{aligned}\text{BOD Removed} &= (\text{BODi} - \text{BODff} - \text{BODe}) \times 8.34 \times Q \\ &= (300 - 35.7 - 10) \times 8.34 \times 0.25 \\ &= 530 \quad \text{lbs TSS/day}\end{aligned}$$

$$\begin{aligned}\text{Sludge Produced} &= \text{Waste Activated Sludge} = (\text{BODi} - \text{BODff} - \text{BODe}) \times 8.34 \times Q \times \text{Yield} \\ &= (300 - 35.7 - 10) \times 8.34 \times 0.25 \times 0.75 \\ &= 397 \quad \text{lbs TSS/day}\end{aligned}$$

$$\begin{aligned}\text{Aerobic Volume} &= \text{SRT} \times \text{Sludge Produced} / (\text{MLSS} \times 8.34) \\ \text{(nominal)} &= 12 \times 397 / (4000 \times 8.34) \\ &= 0.142 \quad \text{Mgal}\end{aligned}$$

#### STM Aerotor Calculations

$$\begin{aligned}\text{Aerobic Volume} &= \text{Length} \times \text{Width} \times \text{Water Depth} \times \text{No. of Basins} \times \text{Wheels per Basin} \\ \text{(actual)} &= 28 \times 21 \times 16.5 \times 2 \times 1 \times 7.48 \\ &= 145122 \quad \text{gal} \\ &= 0.145 \quad \text{Mgal}\end{aligned}$$

$$\begin{aligned}\text{HRT} &= \text{Basin Volume} / \text{Flow} \\ &= (0.145 / 0.25) \times 24 \\ \text{@ design flow} &= 13.9 \quad \text{hrs} \\ \text{@ peak flow} &= 3.5 \quad \text{hrs}\end{aligned}$$

$$\begin{aligned}\text{F/M Ratio} &= Q \times \text{BODi} / (\text{Basin Volume} \times \text{MLSS}) \\ &= 0.25 \times 300 / (0.145 \times 4000) \\ &= 0.13 \quad \text{lbs/lbs/day}\end{aligned}$$

$$\begin{aligned}\text{Organic Loading} &= Q \times 8.34 \times (\text{BODi} - \text{BODff}) / (\text{Basin Volume} \times 133.68) \\ &= 0.25 \times 8.34 \times (300 - 35.7) / (0.145 \times 133.68) \\ &= 28.4 \quad \text{lb BOD/1000 cu-ft}\end{aligned}$$

#### STM Aerotor Fixed Film Analysis

$$\begin{aligned}\text{Fixed Film Area} &= \text{No. of Basins} \times \text{Wheels per Basin} \times \text{FF Surface Area} \\ &= 2 \times 1 \times 17922 \\ &= 35844 \quad \text{ft}^2\end{aligned}$$

$$\begin{aligned}\text{BOD Removed} &= \text{Logfit From F/M curve} \times \text{System Area} \\ \text{by Fixed Film} & \\ \text{BODff} &= 74.5 \quad \text{lb BOD/day} \\ \text{BODff} &= 35.7 \quad \text{mg/L}\end{aligned}$$

## STM Aerotor Process Design

**NH<sub>3</sub> Removed by Fixed Film** = Logfit From F/M curve x System Area

$$\text{NH}_3\text{ff} = 17.7 \quad \text{lb NH}_3/\text{day}$$

$$\text{NH}_3\text{ff} = 8.5 \quad \text{mg/L}$$

**Fixed Film Mass** = System Fixed Film Area x Fixed Film Density / 1000

$$= 35844 \times 3.69 / 1000$$

$$= 132.1 \quad \text{lbs TSS}$$

### Aerator Power Calculations

**N assimilated** = 6% x Sludge Produced / (Q x 8.34)

$$= 6\% \times 397 / (0.25 \times 8.34)$$

$$= 11.4 \quad \text{mg/L}$$

**Oxidized NH<sub>3</sub>** = (TKNi - NH<sub>3</sub>e - NH<sub>3</sub>ff - Org N - N assimilated) x Q x 8.34

$$= (45 - 3 - 8.5 - 1.25 - 11.4) \times 0.25 \times 8.34$$

$$= 43.5 \quad \text{lbs N/day}$$

**Actual O<sub>2</sub> Req. (AOR)** = (BOD Removed x Oxygen Coeff) + (Oxidized NH<sub>3</sub> x Oxygen Coeff)

$$= (530 \times 1.2) + (43.5 \times 4.6)$$

$$= 836 \quad \text{lbs O}_2/\text{day}$$

**Standard O<sub>2</sub> Req. (SOR)** = AOR x 9.02 / (α(βC<sub>s</sub> - C<sub>0</sub>)) x 1.024<sup>(20-T)</sup>

$$= 836 \times 9.02 / (0.75(0.95 \times 9.61 - 2) \times 1.024^{(20 - 25)})$$

$$= 1252 \quad \text{lbs O}_2/\text{day}$$

### STM Aeration Capacity

Number of Pipe Bundles	48	
Volume of Air per Bundle	6.6	cu-ft
Volume per Revolution	317.8	cu-ft/rev
Efficiency at Release Depth	10.70%	
Average Wheel Speed	0.53	rpm
Maximum Wheel Speed	0.80	rpm
Air Supplied @ Ave Speed	169	cu-ft/min
Air Flow Required per wheel	234	cu-ft/min
Air Supplied @ Max Speed	253	cu-ft/min

---

## STM Aerotor Process Design

---

### System Summary

---

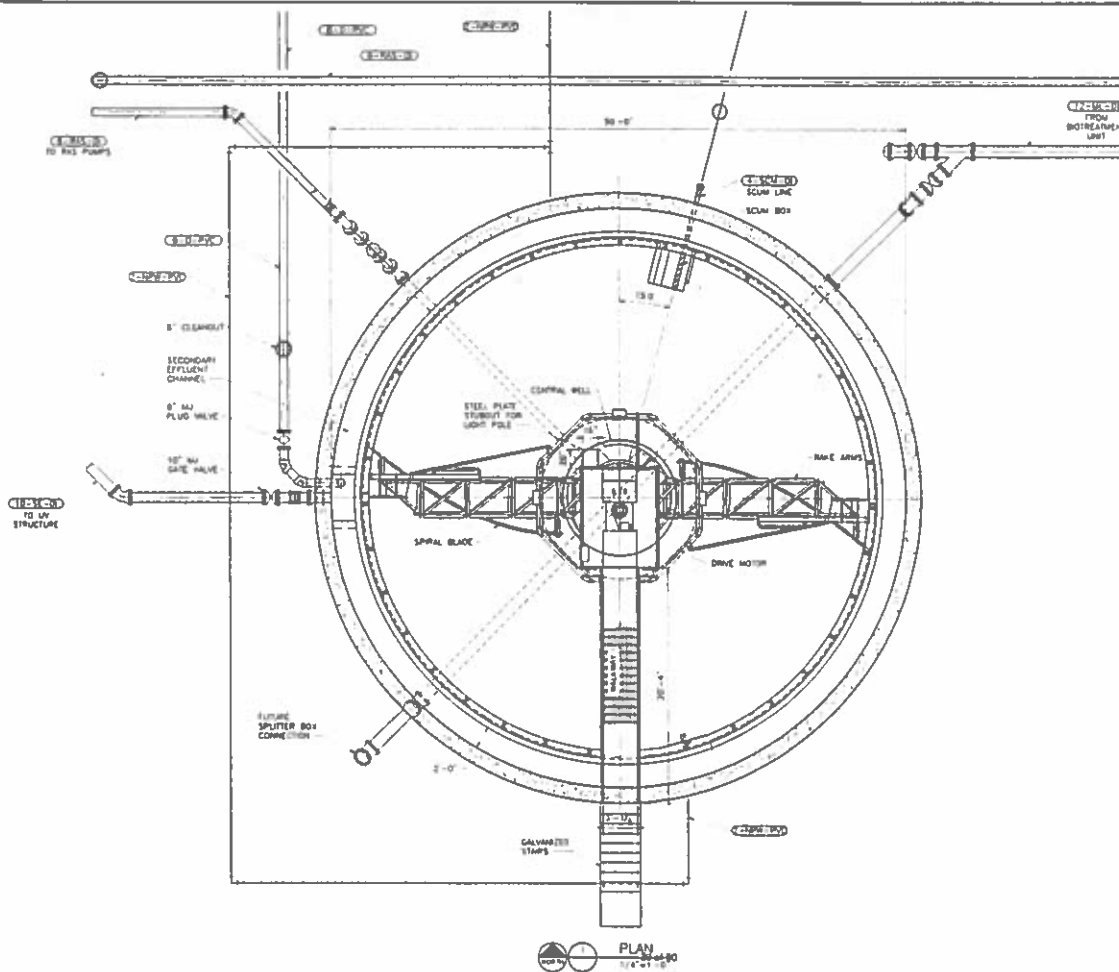
No. Trains	2	
<b>AEROBIC ZONE</b>		
No. of STM Aerotor Zones	1	
Volume per Zone	72,561	(gal)
No. Aerotors per zone	1	
STM (Diameter, Width)	4.8, 3.5	(m)
Aux Pipe Quantity	8	
Aerator Power Draw per Unit	7.3	(HP)
Installed Power per Unit	10	(HP)
Aerobic Zone Width	21.00	(ft)
Aerobic Zone Length	28.00	(ft)
Aerobic Zone Depth	16.50	(ft)

---


## **Section 7 – Clarifier Calculations**

#### **SARA Martinez IV WWTP Secondary Clarification**

Clarifier redundancy is required by TCEQ 217.153 (c)(1) for plants with design flows greater than 0.4 MGD. As such, only a single secondary clarifier was designed for Phase 1 of the Martinez IV plant. Once Phase II is implemented (0.5 MGD design flow), a second clarifier will be constructed. The SARA required maximum surface loading rate is specified as 600 gallons per day per square foot, which is more stringent than the TCEQ criteria. The clarifier was sized to be within the SARA specified surface loading rate at the maximum Phase 1 MGD flow.



90% SUBMITTAL

		THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF WATER RESOURCES 1415 N. ST. 100 SACRAMENTO, CALIF. 95833 (916) 227-1234	
SAN ANTONIO RIVER AUTHORITY PROPOSED MARTINEZ IV WWTP MECHANICAL CLARIFIER PLAN		SHEET NO. 1713 OF 18 DATE: 08/11/87 DRAWN BY: [blank] CHECKED BY: [blank] DESIGNED BY: [blank] APPROVED BY: [blank]	
M = 9		1713-1 1713-2 1713-3 1713-4 1713-5 1713-6 1713-7 1713-8 1713-9 1713-10 1713-11 1713-12 1713-13 1713-14 1713-15 1713-16 1713-17 1713-18	

## FNI PROCESS CALCULATIONS

#### 4. SECONDARY CLARIFICATION UNITS

##### Description:

Conv. Act. Sludge w/ Nitrification, @ Min. Temp > 15 C

##### TCEQ Design Criteria (Chapter 217, Subchapter F)

Max. surface loading rate @ peak flow =	1200 gal/ft <sup>2</sup> -d
Max. surface loading rate based on SARA Requirements @ peak flow =	600 gal/ft <sup>2</sup> -d
Min. detention time @ peak flow =	1.8 hr
Min. side water depth =	10 ft

##### B. Clarifier Sizing

Number of clarifiers required =  
(one clarifier per aeration basin)

1

Surface area =

1,667 ft<sup>2</sup>

Volume provided =

21,667 ft<sup>3</sup>

Peak Flow per Clarifier =

1.00 MGD

5570 ft<sup>3</sup>/hr

Diameter =

50 ft

Depth =

13 ft

1962.5 ft<sup>2</sup>

Volume of Each Clarifier =

25,600 ft<sup>3</sup>

Detention Time =

4.6 hr

Surface loading rate at peak flow =

509.6 gal/ft<sup>2</sup>-d



## WESTECH CALCULATIONS

**WesTech**  
**Advanced Clarifier Design - C.O.P.<sup>TM</sup>**  
WesTech Project No. 23193B Page 1

Checked: ST98  
Date: 2017/08/22  
Pg. 1-4

**PROJECT INFORMATION**

Run Date: 8/22/17  
WesTech No.: 23193B  
Project: SARA Martinez IV WWTP  
Customer: MGC Contractors  
Engineer: Freese & Nichols  
Run By: MO84  
Units: English  
Application: Municipal  
Clarifier Type: Activated Sludge Secondary  
Configuration: Column supported

**INPUT DATA**

Avg. Effluent Flow(MGD): 0.25  
Design Effl. Flow(MGD): 0.31  
(Max. Month)  
Max. Effluent Flow(MGD): 0.5  
(Max. Day)  
Peak Effluent Flow(MGD): 1.0  
MLSS (mg/L): 3000  
SVI (mL/g): 100  
No. of Clarifiers: 1  
Sludge Removal: Spiral Rakes  
Sludge Withdrawal Ring: Yes

**PROGRAM OUTPUT**

<u>Item</u>	<u>Value</u>	<u>Comments</u>
<b><u>BASIN GEOMETRY</u></b>		
Tank Diameter (ft):	50.0	
Side Water Depth (ft):	13.08	
Floor Slope (in/ft):	1.0	
Flat Diameter (ft):	10.0	
Overflow rate @ average flow (gal/ft <sup>2</sup> .day):	127.32	
Overflow rate @ design flow (gal/ft <sup>2</sup> .day):	159.15	
Overflow rate @ max. flow (gal/ft <sup>2</sup> .day):	254.65	
Overflow rate @ peak flow (gal/ft <sup>2</sup> .day):	509.30	
<b><u>RETURN SLUDGE</u></b>		
Total Design RAS flow (MGD):	0.39	
Total Max. RAS flow (MGD):	0.78	
RAS Concentration @ design flow (mg/L):	5,404	
RAS Concentration @ max. flow (mg/L):	4,923	

# WesTech

## Advanced Clarifier Design - C.O.P.<sup>TM</sup>

WesTech Project No. 23193B Page 2

<u>Item</u>	<u>Value</u>	<u>Comments</u>
Solids Load. Rate @ dsn. flow (lbs/ft <sup>2</sup> .day):	8.96	
Solids Load. Rate @ max. flow (lbs/ft <sup>2</sup> .day):	16.32	
<b><u>CENTER COLUMN</u></b>		
Column Outside Diameter (in):	24.0	
Number of ports:	4	
Port Width (in):	9.0	
Total Port Height (in):	14.5	(includes 3" freeboard)
Velocity in Column @ design flow (fps):	0.37	
Velocity in Column @ max. flow (fps):	0.67	
Velocity thru Ports @ design flow (fps):	0.38	
Velocity thru Ports @ max. flow (fps):	0.69	
<b><u>ENERGY DISSIPATING INLET</u></b>		
EDI Diameter (ft):	6.0	
Submerged Depth (ft):	2.0	
Number of ports:	4	
Port Width (in):	9.0	
Total Port Height (in):	17.0	(includes 3" freeboard)
EDI Detention time @ design flow (sec.):	46.24	
EDI Detention time @ max. flow (sec.):	25.38	
Velocity thru Ports @ design flow (fps):	0.31	
Velocity thru Ports @ max. flow (fps):	0.57	
<b><u>FLOCCULATING FEEDWELL</u></b>		
Feedwell Diameter (ft):	14.0	
Submerged Depth (ft):	4.5	
Vertical Velocity @ design flow (fpm):	0.42	
Vertical Velocity @ max. flow (fpm):	0.77	

<b style="font-size: 1.2em;">WesTech</b> <b style="font-size: 1.1em;">Advanced Clarifier Design - C.O.P.<sup>TM</sup></b> <div style="display: flex; justify-content: space-between; font-size: 0.9em;"> <span>WesTech Project No. 23193B</span> <span>Page 3</span> </div>
---

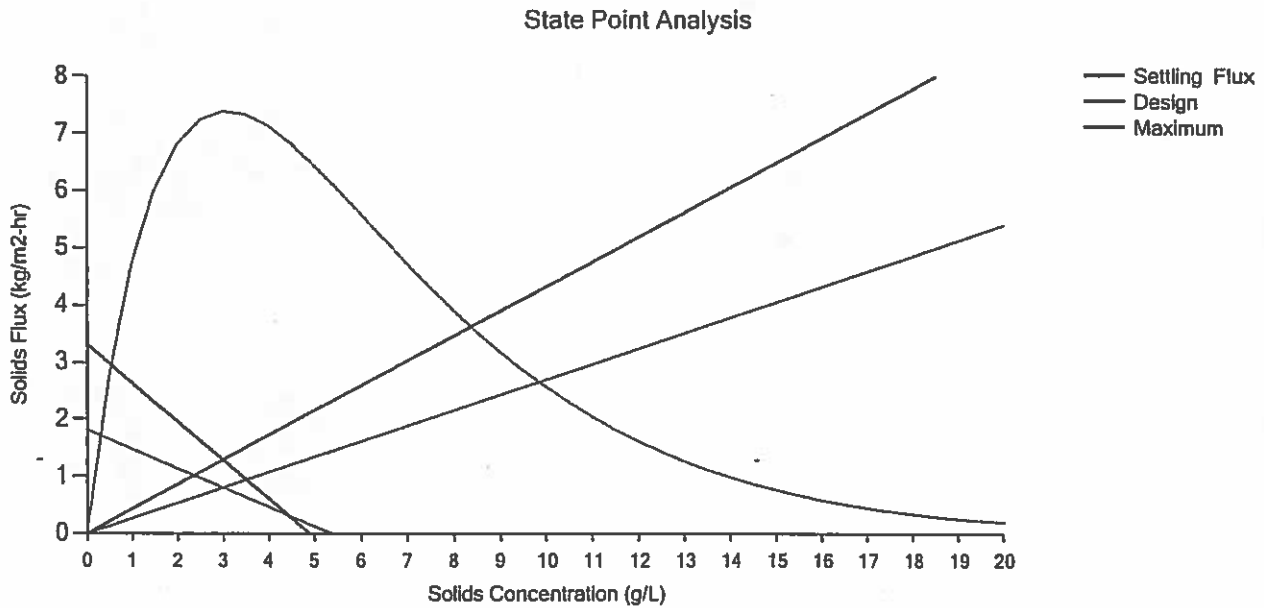
<u>Item</u>	<u>Value</u>	<u>Comments</u>
<b><u>SPIRAL BLADE DESIGN</u></b>		
Blade Depth at Wall (in):	6.0	
Blade Depth at Inner End (in):	15.0	
Mechanism Tip Speed (fpm):	8.5	
Additional Rake Arms req'd:	None	

**SLUDGE RING**

Sludge Ring Diameter (ft):	10.0
Sludge Ring Height (in):	6.0
Ring Width at Outlet (in):	6.0
Ring Width at far end (in):	4.0
Tot. Headloss at Max. RAS Flow (ft):	0.286
Number of Orifices:	6

Orifices are spaced evenly around the ring, and are mirrored about the outlet point. Orifices are tabulated for only one half of the ring and are numbered starting at the far (narrow) end and proceeding toward the outlet.

<u>Orifice No.</u>	<u>Height (in):</u>	<u>Width (in):</u>
1	4	8.5
2	4	4
3	3	3



**Martinez IV - Clarifier Analysis -Sizing for Expansion and Permit Renewal**  
**San Antonio River Authority**

Date 16-Aug-19  
 Engineer Amy Middleton

**Permitted**

**Average Flow** 0.66 MGD plus existing 0.25 MGD = 0.91 MGD TOTAL

**Peak Flows**

Instantaneous two-hour peak 2.64 MGD NOTE: peaking factor is 4 so instantaneous GPM 1833.333333

**Flow split between Clarifiers**

Small 100%

**Flow Analysis for Proposed Replacement Clarifier**

Average Permitted Flow 0.66 MGD  
 Peak Permitted Flow 2.640 MGD

**Clarifier Sizing**  
**Overflow Rates**

217.154 (c) (1) Table F.2. - Maximum Clarifier Overflow Rates Based Upon Traditional Design methods

Extended Aeration - enhanced secondary

Maximum Overflow Rate 800 GPD/SF is SARA Standard 800 GPD/SF

Peak Flow

2.64 MGD

2.64 MGD

Area Required (based on SARA Standard)

4400 SF

3300

Diameter of Clarifier

74.8672 feet

64.83688

Diameter selected

75 feet

50 Feet - OK TCEQ

8.16.2019



*Amy Lynn Middleton*

## **Section 8 – UV Disinfection Calculations**

### **SARA Martinez IV WWTP Disinfection**

The use of Ultra-Violet light for Disinfection was specified by SARA in the Request for Proposals. The UV disinfection system will be covered to provide all-weather protection and shade from direct sunlight to minimize algae growth. The Trojan UV System was selected during preliminary design given the Owner's familiarity with Trojan's system and use of it at their other installations. FNI worked with Trojan to ensure the UV Disinfection basin was hydraulically appropriate for the head loss expected through the lamps. Trojan utilized the influent characteristics to determine the appropriate bioassay dose and number of lamps required appropriate disinfection for Phase 1 through Phase 4 of the plant, shown on the following pages.

The following TCEQ Chapter 217.295, Subchapter L Design Criteria were used for the design:

- (a) A UV system must be sized based upon the results of an independent bioassay that meets the following minimum criteria
  - (1) The lamp and ballast in a bioassay test system must have the same spectral characteristics and 254 nm wavelength output as the full-scale system.
  - (2) Spacing of the lamps in a bioassay test unit must be the same as in the full-scale system
  - (3) The arrangement of the lamps must mirror the full-scale system.
  - (4) The max scale-up factor is 10
  - (5) Scale down is prohibited
  - (6) The minimum number of lamps in a bioassay is four lamps per reactor

For Phase 1 flows, 6 modules (3 per bank) with 8 lamps in each module will be provided. The UV system basin, however, will be sized to handle up to 1 MGD design flow (4 MGD peak flow). Reduction baffles will be included during the initial phases, which will be removed as additional lamp modules are added for Phase 2 and 3 when flows increase. During Phase 4 Build Out, a parallel train will be added to treat the peak 8 MGD flow.



[illegible]

## TROJAN PROCESS CALCULATIONS

## Sara Martinez - Phase 1

### Bioassay Dose Calculation



From Dillon bioassay report UV Dose value for 65% =  $2823.5 \times Q^{-0.9976}$   
Where Q = flow / lamp in LPM and dose has the unit mW.secs/cm<sup>2</sup>

#### System Information

System Type: UV3000B

Lamp Length: 64"

#### Flow / UV System Characteristics

Peak Flow: 1 MGD = 2,628.76 lpm  
No. of Lamps: 48  
UV Transmittance: 65 %

#### Flow per Lamp Calculation

Flow per Lamp:  $\frac{1,000,000}{48}$  gpd/lamps  
Flow per Lamp: 20,833.3 gpd/lamp  
Flow per Lamp: 20,833.3 gpd/lamp x 3.785 L/US Gallon  
Flow per Lamp:  $\frac{78,854.2}{1,440}$  Lpd/lamp minutes/day  
Flow per Lamp: 54.8 Lpm/lamp

#### Bioassay Dose Equation

$$Dose = 2823.5 * \left( \frac{lpm}{lamp} \right)^{-0.9976}$$

Dose = 52.1 mWs/cm<sup>2</sup>  
Dose = 52.1 mJ/cm<sup>2</sup>  
Dose = 52,059.3 μWs/cm<sup>2</sup>

## **Section 9 – Return Activated & Waste Activated Sludge Pump Calculations**

## 5. SLUDGE PUMPING UNITS

Enter data in grey cells

### Description:

Conv. Act. Sldg w/ Nitrification, @ Min. Temp > 15 C

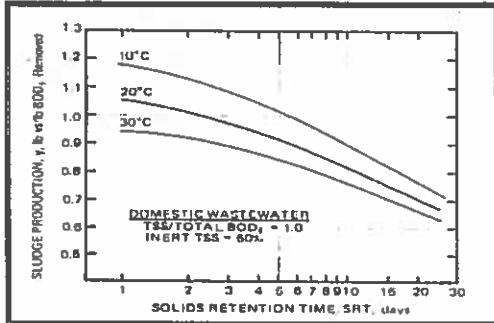
### A. WAS Pump Sizing

TCEQ Design Criteria (Chapter 217.152, Subchapter F)

(3) A return sludge pumping system must be capable of pumping at least 200 gpd/sf but not more than 400 gpd/sf.

### Select Solids Yield from the Chart below:

Without Primary Treatment



Net secondary sludge production =

\*Assumed

0.86 lb VS/BOD removed

Notes: Typical minimum Solids Retention Time (SRT) maintained in WWTPs is 8 days. Secondary solids production is typically estimated at SRT of 8 days and at 15C temperature.

Select Mixed Liquor VS/TS Ratio =

\*Assumed

0.8

Select solids concentration in WAS =

\*Assumed

mg/L 8,000

10000

Secondary solids produced =

lb TS/d 560

Wet secondary sludge produced =

lb TS/hr 23

gal/d 8,400

GPM 6

Sludge Processing Capacity of Roll-off Sludge Mate =

30,000 gal/d

### B. RAS Pump Sizing

Maximum secondary clarifier underflow rate per clarifier=

200 gal/d ft<sup>2</sup>

Maximum secondary clarifier underflow per clarifier=

392,500 gal/d

300 GPM

Flow Range of RAS Flow =

150 - 300 GPM

0.216 - 0.43 MGD

Total RAS Flow =

0.216 - 0.43 MGD

Note: One dedicated RAS pump for each clarifier with one stand by for every pair of clarifiers

Total number of clarifiers =

1

Number of RAS pumps =

3

Flow rate of each RAS pump =

300 GPM

RAS Pump TDH =

20 ft

## **Section 10 – RAS/WAS Pump System Curve Calculations**



# RAS System Curve 1 pump

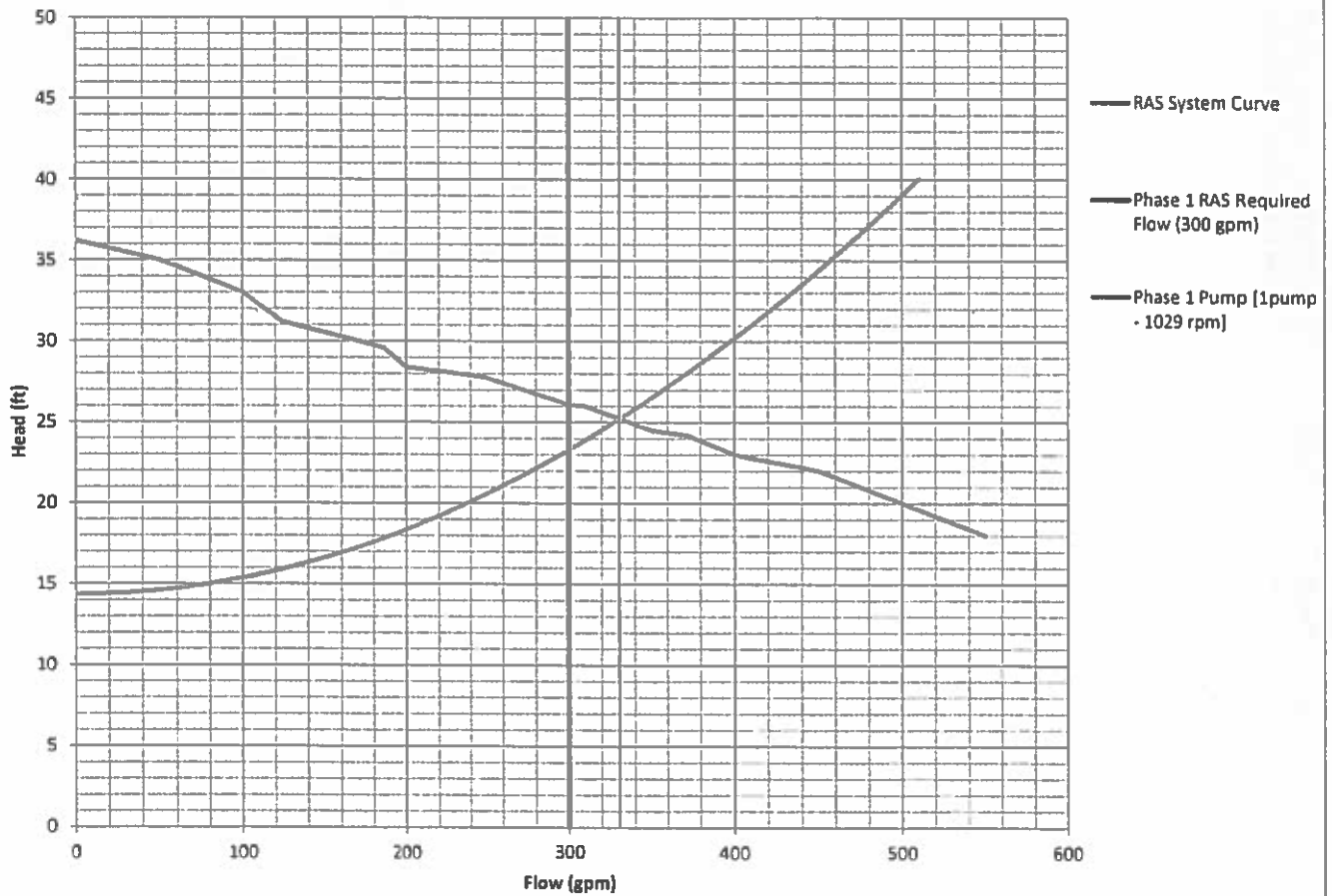
SEGMENT	% OF FLOW
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%

## SYSTEM HEAD CURVE CALCULATIONS (DON'T EDIT)


FLOW (CFS)	FLOW (MGD)	S1 FLOW (CFS)	S2 FLOW (CFS)	S3 FLOW (CFS)	S4 FLOW (CFS)	S5 FLOW (CFS)	S6 FLOW (CFS)	S7 FLOW (CFS)	S8 FLOW (CFS)	S9 FLOW (CFS)	S10 FLOW (CFS)	SEGMENT 1	MIN TDM	SEGMENT 1	AVG TDM	SEGMENT 1	MAX TDM
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14	0.00	14	0.00	14
15	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	14	0.02	14	0.02	14
30	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.04	14	0.04	14	0.04	14
45	0.06	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.06	14	0.06	14	0.06	14
60	0.09	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.09	14	0.09	14	0.09	14
75	0.11	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.11	14	0.11	14	0.11	14
90	0.13	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.13	14	0.13	14	0.13	14
105	0.15	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.15	14	0.15	14	0.15	14
120	0.17	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.17	14	0.17	14	0.17	14
135	0.19	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.19	14	0.19	14	0.19	14
150	0.22	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.22	14	0.22	14	0.22	14
165	0.24	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.24	14	0.24	14	0.24	14
180	0.26	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.26	14	0.26	14	0.26	14
195	0.28	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.28	14	0.28	14	0.28	14
210	0.30	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.30	14	0.30	14	0.30	14
225	0.32	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.32	14	0.32	14	0.32	14
240	0.35	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.35	14	0.35	14	0.35	14
255	0.37	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.37	14	0.37	14	0.37	14
270	0.39	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.39	14	0.39	14	0.39	14
285	0.41	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.41	14	0.41	14	0.41	14
300	0.43	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.43	14	0.43	14	0.43	14
315	0.45	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.45	14	0.45	14	0.45	14
330	0.48	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.48	14	0.48	14	0.48	14
345	0.50	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.50	14	0.50	14	0.50	14
360	0.52	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.52	14	0.52	14	0.52	14
375	0.54	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.54	14	0.54	14	0.54	14
390	0.56	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.56	14	0.56	14	0.56	14
405	0.58	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.58	14	0.58	14	0.58	14
420	0.60	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.60	14	0.60	14	0.60	14
435	0.63	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.63	14	0.63	14	0.63	14
450	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65	14	0.65	14	0.65	14
465	0.67	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.67	14	0.67	14	0.67	14
480	0.69	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.69	14	0.69	14	0.69	14
495	0.71	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0.71	14	0.71	14	0.71	14
510	0.73	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	0.73	14	0.73	14	0.73	14



**Martinez IV Return Activated Sludge System-Head Curve**



## PUMPS



Title: RAS Pumping Martinez JV

Date: 28-Aug-17

By: JON EK

CMD:

PUMP INFO

Phase 1 Flow = 300 gpm (1020 rpm) 1 Pump

FLOW (GPM)	HEAD (FT)	EFFICIENCY (%)	NPSH	PUMPS IN PARALLEL			
				3 PUMPS	4 PUMPS	5 PUMPS	6 PUMPS
0	36						
50	35						
100	33						
124	31	30	6				
186	30	41	6				
200	28.4						
248	27.8	46	7				
248	27.8	46	7				
300	26.1						
310	26.0	50	7				
350	24.5						
372	24.2	52	8				
400	23.0						
450	22.0						
500	20.0						
550	18.0						

Phase 2 Flow = 700 gpm (1118 rpm)

FLOW (GPM)	HEAD (FT)	EFFICIENCY (%)	2 PUMPS	PUMPS IN PARALLEL			
				3 PUMPS	4 PUMPS	5 PUMPS	6 PUMPS
0	43		0				
114	37		228				
216	35		412				
288	32		576				
360	30		720				
432	28		864				

## **Section 11 – Sludge Production Calculations**

### Sludge Production, Storage, and Disposal Requirements

**Design Considerations:**

Average Flow Rate (Phase I) =	0.25	MGD
Peak Flow Rate (Phase I) =	1	MGD
Weekly Peaking Factor =	1.5	
Influent BOD =	263	mg/L
Effluent BOD =	10	mg/L
BOD Removed =	253	mg/L
Average BOD Consumed =	527.505	lb /day
Peak BOD Consumed =	791.2575	lb /day

**Assumptions:**

Yield =	0.85	lb VSS/lb BOD
Unthickened Solids Concentration =	8,000	mg/L
Weekly Peaking Factor =	1.5	
Select Mixed Liquor VS/TS Ratio (Assumed) =	0.8	
20% increase in solids yield using moderate amount of polymer		
40% increase in solids yield using maximum amount of polymer		
Density of Sludge =	1.94	slugs/ft <sup>3</sup>

1. Solids (TSS) Yield		WAS Solids Concentrations (mg/L)			
		6,000	7,000	8,000	9,000
lb VSS / lb BOD	lb of TSS produced / day	WAS (GPD)			
0.85	841	16,801	14,401	12,601	11,201

**Storage Requirements (0.25 MGD):**

Average Daily WAS Production =	8,401	gal/d
Peak Daily WAS Production =	12,601	gal/d

**Sludge Dewatering Box**

Storage Capacity (One 30 cu yd boxes) =	30	yd <sup>3</sup>
Manufacturer) =	24,000	gals/day
	1,000	gals/hr

<---Based on 0.8% Solids

Volume of WAS  
 Discharge per day = 12,601 gals  
 Average Day Storage  
 Time = 2.8 Days  
 Peak Day Storage Time  
 = 1.9 Days

**Total Solids Production (0.25 MGD):**

Week Peakly Solids  
 Production = 841 lb/day  
 Peak Weekly Solids  
 Production = 5,885 lb/week

**Volume of Dewatered Sludge (1.0 MGD):**

Peak Weekly Solids Production = 841 lb/day

\*\*A sludge dewatering box provides dewatered sludge cake with a solids concentration that ranges from 12%-16%\*\*

Dewatered Solids Content (Assumed)	Dewatered Sludge Volume	
	gallons/day	cy/day
12%	840	4
14%	720	4
16%	630	3

\*\*Operates 5 Days per week during Average flow\*\*

Volume of Dewatered Sludge = 4 CY/day  
 Volume of Trucking Capacity = 20 CY / Truck  
 Number of Truck Transports = 2 Truck/week

## **Section 12 – Abbott Road Lift Station Calculations**

**Wet Well Volume Calculations**

Min. Pump Cycle Times	
Pump Horsepower	Min. Cycle Times (minutes)
<50	6
50 - 100	10
>100	15

**Volume Calculation**

$$V = \frac{T \cdot Q}{4}$$

V = Active Volume (gallons)  
Q = Pump Capacity (GPM)  
T = Cycle Time (minutes from chart above)

Average Daily Flow =	0.18 MGD	125 GPM
Peak Wet Weather Flow =	0.5 MGD	347 GPM
Number of Pumps in Alternating Cycle, n =	2	
Delta h, distance between on/off levels =	1.00 foot	
T =	6 min.	
Q =	418 GPM	
Active / Working Volume Req'd =	627 Gallons	84 CF
Working Depth Required =	0.74 ft	
Wet Well Area =	113 SF	
Working Volume Calculated =	105 CF	
Total Volume Calculated =	1,979 CF	

----- Assuming railing and drop pipe connection are IN working volume but grouting and motor are NOT in working volume

**Station Operation Table - Wet Wells Together**

Top of Slab Elevation =	563	R-AMSL	
Finished Ground (FG) Elevation =	563.5	R-AMSL	
Inlet Flowline =	555.5	R-AMSL	
Inlet Diameter =	1.25	ft	
Minimum Submergence (Pump) =	2.5	ft	
Submergence Factor of Safety =	2	ft	
Bottom of Wetwell =	545.5	R-AMSL	
Pump Elevation =	545.83	R-AMSL	----- Assuming Pumps are 4-inches off the ground
Total Depth =	17.50	ft	
<b>Rising Water Level</b>			
Diesel Pump ON =	556.50	R-AMSL	1.00 ft
High Water Level Alarm, P-3 ON	555.50	R-AMSL	2.00 ft
P-2 ON =	553.50	R-AMSL	1.50 ft
P-1 ON =	552.00	R-AMSL	1.00 ft
All Pumps Off =	551.00	R-AMSL	1.00 ft
Low Level Cutoff =	550.00	R-AMSL	5.50 ft
<b>Falling Water Level</b>			

P-2 ON =	553.50	R-AMSL	1.50 ft
P-1 ON =	552.00	R-AMSL	1.00 ft
All Pumps Off =	551.00	R-AMSL	1.00 ft
Low Level Cutoff =	550.00	R-AMSL	3.50 ft

Wet Well Ventilation				Open Areas:	
Q <sub>max</sub> entering WW =	25	CFM		Screen Size	%
Design Q <sub>max</sub> =	418	ipm			
Percent Open Area of Screen =	76%	Assume 1/4" Screen		#16 Screen (0.018" wire)	50
Percent Closed Area of Screen =	24%			#14 Screen (0.020" wire)	51
Vent Area Req'd =	11	in <sup>2</sup>		#12 Screen (0.023" wire)	52
Minimum Diameter of Vent =	3.70	inches		#10 Screen (0.025" wire)	56
Minimum Diameter if 2 Vents are provided =	2.62	inches		#8 Screen (0.028" wire)	60
				1/4" Mesh (0.032" wire)	76
				1/2" Mesh (0.063" wire)	76

Non-Volume Storage	
Wet Well Volume	
Wet Well Diameter	12 ft
Gross Area	113 SF
Volume per ft	113 CF/ft
Volume per ft	846 gallons/ft
Non-Volume Storage for pump motor	
Motor Diameter	1.37 ft
Total Height of Motor	2.83 ft
Height Above min. submergence	2.50 ft
Non-Volume Area for Motor	2 SF
Volume Taken up by Motor	6.05 CF
Non-Volume Storage for Discharge Piping	
Discharge Diameter	4 in
Non-Volume Area for Piping	0.17 SF
Height of Piping in Working Volume	3.50 ft
Volume Taken up by Piping in Working Volume	0.61 CF
Non-Volume Storage for Guide Rails	
Rail Diameter	3 in
Non-Volume Area for Piping	0.20 SF
Height of Guide Rails in Working Volume	3.50 ft
Volume Taken up by Guide Rails in Working Volume	0.69 CF
Non-Volume Storage for Drop Connection Pipe	
Pipe Diameter	15 in
Non-Volume Area for Piping	1.82 SF
Height of Drop Connection Pipe in Storage Volume	3.50 ft
Total Height of Drop Connection Pipe	10.00 ft
Volume Taken up by Drop Connection Pipe	6.36 CF
Non-Volume Storage for Grout	
Diameter of Wet Well	12.0 ft
Distance between Wall and Pumps (Figure a-e)	4.3 ft
Width of Grouting (P)	3.3 ft
Slope of Grout	10%
Height of Grout (R)	0.33 ft
Volume of Side Grout	2.2 CF

See Figures on Right

Assuming Pumps are 1-foot apart

Assuming grouting begins 1-foot away from pumps

Assuming 2 ft of grouting on perimeter



Distance between Wall and Pumps (Figure b-b)	5.42	ft	
Distance between Inlet Pipe and Pumps (Figure b-b)	5.42	ft	
Width of Grouting (M)	2.9	ft	<--- Assuming grouting begins 2.5 ft away from pumps
Slope of Grout	10%		
Height of Grout (N)	0.29	ft	
Volume of Grout near Inlet Pipe	0.9	CF	<--- Assuming 2 ft of grouting on perimeter
Width of Grouting	4.4	ft	<--- Assuming grouting begins 1 ft away from pumps
Slope of Grout	10%		
Height of Grout	0.44	ft	
Volume of Grout behind Pumps	3.90	CF	<--- Assuming 4 ft of grouting on perimeter
Total Volume of Grout	6.97	CF	
Total Non-Volume Storage	14.33	CF	

Emergency Storage		
Elev of TOC of Wet Well	563.0	ft
Elev of TOC of Nearest Manhole	564.0	ft
Inv Elev of Incoming Pipe	555.5	ft
Spill Elevation	561	ft
Lead Pump On Level	552.0	ft
Diameter of Wet Well	12	ft
Emergency Storage Volume	1,018	ft <sup>3</sup>
Avg Flow Entering Wet Well	0.18	MGD
Avg Flow Entering Wet Well	125	gpm
Avg. Flow Entering Wet Well	17	cfm
Minutes of Emergency Storage	61	min

#### Abbott Rd - Average Force Main Flushing Time

Wet Well Inflow (gal/min) **Average Daily Flow	125	gpm
(WWFT) Wet Well Filling Time	6.77	min
Distance Between Lead Pump on and All Pumps Off	1.0	ft
(PRT) Pump Running Time	13.43	min
(WWDT) Wet Well Detention Time	20	min
Total Length of Force Main	10,000	LF
Velocity in the Force Main with 1 pump on	4.7	fps
(FC) Average Flushing Cycles	2.65	
Whole Part of the Flushing Cycle	2	
Decimal Part of the Flushing Cycle	0.65	
(FT) Flushing Time	49.12	minutes
Diameter of FM	6.00	inches

1 Pump On Flow (Duty Pump)	188	GPM
2 Pumps On Flow (Duty Pump + Emergency Pump)	418	GPM

#### Abbott Rd - Average/Max Detention Time

Time to Fill Wet Well =	1.50	min
Time to Empty Wet Well =	2.14	min
Detention Time =	3.64	min

## Reference SAWS Lift Station Design & Construction Guidelines

### Treatment Operations

#### Water Hammer Calculations

$$a = \frac{4660}{\sqrt{\frac{E_w D_i}{E_p t_p}}}$$

$E_w$  = Water Bulk Modulus (300,000 psi)  
 $D_i$  = Force main pipe inner diameter (inches)  
 $E_p$  = Force main material modulus of elasticity (130,000 psi for HDPE)  
 $t_p$  = Force main pipe wall thickness (inches)

$E_w$ =	300000 psi	
$D_i$ =	5.761 in	Schedule 80 PVC
$E_p$ =	420000 psi	Schedule 80 PVC
$t_p$ =	0.432 in	Schedule 80 PVC
$a$ =	1509.881522	

$$P = \frac{aV}{2.31g} + \text{Operating Pressure}$$

$P$  = water hammer pressure  
 $a$  = pressure wave velocity (Wavespeed)  
 $V$  = flow velocity in the pipe  
 $g$  = acceleration of gravity

$g$ =	32.2 ft/sec <sup>2</sup>	
$v$ =	0.00	
$a$ =	1509.881522 ft/sec for PVC Pipe	
Operating pressure =	33.4 ft	(atmospheric pressure)
$P$ =	33.4 ft of water	

## **Diesel Pump Calculations**

NPSHa Calculation - Diesel Pump		
Input		
Water Elevation in Wet Well =	556.50	Feet above Sea Level
Diesel Pump ON =	556.50	ft-AMSL
Bottom of Wet Well =	545.50	Feet above Sea Level
Roughness Factor of Suction Pipe =	120	C-Factor, Typically 120
Total Equivalent Length of Suction Pipe =	27.50	ft
Diameter of Suction Pipe =	4	in
Expected flow =	438	gpm
Suction Friction Head, $h_{fs}$ (feet) =	3.68	Friction loss in Suction Pipe
Vapor pressure at the suction nozzle, $h_{vpa}$ (feet) =	1.4	See Vapor Pressure Sheet
Safety Factor (feet) =	4	
Output		
Atmospheric Pressure, $h_{pa}$ (feet) =	33.4	See Atmospheric Pressure
Suction Static Head, $h_{ss}$ (feet) =	11	
NPSHA	35.3	

Abbott Rd - Average Force Main Flushing Time - Diesel Pump		
Wet Well Inflow (gal/min) **Average Daily Flow	125	gpm
(WWFT) Wet Well Filling Time	12.08	min
Distance Between Diesel Pump on and All Pumps Off	13.2	ft
(PRT) Pump Running Time	4.83	min
(WWDT) Wet Well Detention Time	17	min
Total Length of Force Main,	10,000	LF
Velocity in the Force Main with 1 pump on	4.9	fps
(FC) Average Flushing Cycles	7.04	
Whole Part of the Flushing Cycle	7	
Decimal Part of the Flushing Cycle	0.04	
(FT) Flushing Time	118.58	minutes
Diameter of FM	6.00	inches
Diesel Pump Flow	438	GPM

Abbott Rd - Average/Max Detention Time - Diesel Pump		
Time to Fill Wet Well =	9.42	min
Time to Empty Wet Well =	9.42	min
Detention Time =	18.84	min

## **System and Pump Curve Calculations**

Length (FT)
6300
Inner Diameter (inches)
9.781
FM Friction Coefficient
150
Wall Thickness (inches)
0.432
Outer Diameter (inches)
9.625

Suction Pipe Characteristics
Length (ft)
17.5
Inner Diameter (inches)
4.18
Wall Thickness (inches)
0.32
Outer Diameter (inches)
4.8
Suction Pipe Friction Coefficient
120

Maximum Head System Curves - Force Main C-150											
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDM (ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.61	0.00	36.61	
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.23	36.61	0.00	36.84	
0.04	27.78	0.06	0.34	0.63	0.01	0.02	0.63	36.61	0.01	37.45	
0.06	41.67	0.09	0.51	0.97	0.02	0.05	1.75	36.61	0.02	38.39	
0.08	55.56	0.12	0.68	1.29	0.04	0.09	2.99	36.61	0.04	39.64	
0.10	69.44	0.15	0.84	1.62	0.06	0.14	4.32	36.61	0.07	41.19	
0.12	83.33	0.18	1.01	1.94	0.09	0.19	5.73	36.61	0.09	43.04	
0.14	97.22	0.21	1.18	2.27	0.12	0.26	7.22	36.61	0.13	45.16	
0.16	111.11	0.24	1.35	2.59	0.15	0.35	8.78	36.61	0.17	47.56	
0.18	125.00	0.28	1.52	2.91	0.19	0.44	10.41	36.61	0.21	50.24	
0.20	138.89	0.31	1.69	3.24	0.23	0.54	12.10	36.61	0.26	53.18	
0.22	152.78	0.34	1.86	3.58	0.27	0.65	13.85	36.61	0.32	56.38	
0.24	166.67	0.37	2.03	3.91	0.32	0.78	15.65	36.61	0.38	59.84	
0.26	180.56	0.40	2.20	4.21	0.37	0.91	17.50	36.61	0.44	63.56	
0.28	194.44	0.43	2.36	4.53	0.42	1.06	19.40	36.61	0.51	67.52	
0.30	208.33	0.46	2.53	4.86	0.48	1.22	21.34	36.61	0.59	71.74	
0.32	222.22	0.49	2.70	5.18	0.54	1.38	23.32	36.61	0.67	76.21	
0.34	236.11	0.52	2.87	5.50	0.60	1.56	25.35	36.61	0.76	80.92	
0.36	250.00	0.55	3.04	5.83	0.67	1.73	27.42	36.61	0.85	85.88	
0.38	263.89	0.58	3.21	6.15	0.74	1.93	29.52	36.61	0.95	91.07	
0.40	277.78	0.61	3.38	6.47	0.82	2.16	31.65	36.61	1.05	96.51	
0.42	291.67	0.64	3.55	6.80	0.89	2.38	33.81	36.61	1.16	102.18	
0.44	305.56	0.67	3.72	7.12	0.97	2.61	36.01	36.61	1.27	108.06	
0.46	319.44	0.70	3.89	7.45	1.06	2.86	38.23	36.61	1.38	114.23	
0.48	333.33	0.73	4.05	7.77	1.14	3.11	40.48	36.61	1.51	120.69	
0.50	347.22	0.76	4.22	8.09	1.23	3.38	42.76	36.61	1.64	127.41	
0.52	361.11	0.79	4.39	8.42	1.33	3.65	45.08	36.61	1.77	134.35	
0.54	375.00	0.82	4.56	8.74	1.42	3.94	47.42	36.61	1.91	141.51	
0.56	388.89	0.85	4.73	9.06	1.52	4.24	49.79	36.61	2.06	148.89	
0.58	402.78	0.88	4.90	9.39	1.63	4.54	52.19	36.61	2.20	156.52	
0.60	416.67	0.91	5.07	9.71	1.73	4.86	54.62	36.61	2.36	164.36	
0.62	430.56	0.94	5.24	10.04	1.84	5.19	57.07	36.61	2.52	172.43	
0.64	444.44	0.97	5.42	10.36	1.94	5.51	59.54	36.61	2.68	180.72	
0.66	458.33	1.01	5.57	10.68	2.05	5.86	62.02	36.61	2.85	189.23	
0.68	472.22	1.04	5.74	11.01	2.16	6.25	64.52	36.61	3.03	197.96	
0.70	486.11	1.07	5.91	11.33	2.26	6.62	67.04	36.61	3.21	206.91	
0.72	500.00	1.10	6.08	11.65	2.43	7.00	69.57	36.61	3.40	216.06	
0.74	513.89	1.13	6.25	11.98	2.52	7.46	72.11	36.61	3.58	225.47	
0.76	527.78	1.16	6.42	12.30	2.68	7.90	74.67	36.61	3.79	235.12	
0.78	541.67	1.19	6.59	12.63	2.81	8.22	77.25	36.61	3.98	245.29	
0.80	555.56	1.22	6.76	12.95	2.95	8.64	79.82	36.61	4.18	255.23	

	Net Well WSE	Headworks WSE
Low WSE	551.00	564.56
Average WSE	552	565.59
High WSE	553.5	567.61

Min Static Head	29.03			
Avg Static Head	33.9			
Max Static Head	38.61			
Minor Headloss for FM				
Type of Minor Hd	Size (in)	K	Quant	Sum K
Ninety (90°)	6	0.36	9	3.24
Forty-Five (45°)	6	0.18	10	1.8
Pipe Entrance	6	0.5	1	0.5
Pipe Exit	6	1	1	1
Tee, Flow Through Branch	6	0.72	1	0.72
SUM				5.97

Minor Headloss for Suction Pipe				
Type of Minor Hd	Size (in)	K	Quant	Sum K
Penity (90°)	4	0.36	2	0.72
Forty-Five (45°)	4	0.18	2	0.36
Pipe Entrance	4	0.5	1	0.5
Pipe Exit	4	1	1	1
Tee, Flow Through Branch	4	0.72	1	0.72
SUM				3.32

Hazen-Williams Equation

$$V = 1.318 C_{HW} R_H^{0.63} S^{0.54} \quad S = \frac{h_f}{L}$$

$$h_f = \left( \frac{V}{1.318 C_{HW} \left( \frac{d}{4} \right)^{0.63}} \right)^{\frac{1}{0.54}} \cdot L$$

d = n

Maximum Head System Curve 8" Force Main C=135										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.61	0.00	36.61
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.28	36.61	0.00	36.89
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.01	36.61	0.01	37.63
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.13	36.61	0.02	38.77
0.08	55.56	0.12	0.68	1.29	0.04	0.09	3.63	36.61	0.04	40.28
0.10	69.44	0.15	0.84	1.62	0.06	0.14	5.49	36.61	0.07	42.17
0.12	83.33	0.18	1.01	1.94	0.09	0.19	7.69	36.61	0.09	44.40
0.14	97.22	0.21	1.18	2.27	0.12	0.26	10.24	36.61	0.13	46.98
0.16	111.11	0.24	1.35	2.59	0.15	0.35	13.11	36.61	0.17	49.89
0.18	125.00	0.28	1.52	2.91	0.19	0.44	16.30	36.61	0.21	53.13
0.20	138.89	0.31	1.69	3.24	0.23	0.54	19.82	36.61	0.26	56.89
0.22	152.78	0.34	1.86	3.56	0.27	0.65	23.64	36.61	0.32	60.57
0.24	166.67	0.37	2.03	3.88	0.32	0.78	27.77	36.61	0.38	64.78
0.26	180.56	0.40	2.20	4.21	0.37	0.91	32.21	36.61	0.44	69.27
0.28	194.44	0.43	2.36	4.53	0.42	1.06	36.95	36.61	0.51	74.07
0.30	208.33	0.46	2.53	4.86	0.48	1.22	41.99	36.61	0.59	79.19
0.32	222.22	0.49	2.70	5.18	0.54	1.38	47.32	36.61	0.67	84.60
0.34	236.11	0.52	2.87	5.50	0.60	1.56	52.94	36.61	0.76	90.31
0.36	250.00	0.55	3.04	5.83	0.67	1.75	58.85	36.61	0.85	96.31
0.38	263.89	0.58	3.21	6.15	0.74	1.95	65.05	36.61	0.95	102.60
0.40	277.78	0.61	3.38	6.47	0.82	2.16	71.53	36.61	1.05	109.19
0.42	291.67	0.64	3.55	6.80	0.89	2.38	78.29	36.61	1.16	116.06
0.44	305.56	0.67	3.72	7.12	0.97	2.61	85.34	36.61	1.27	123.21
0.46	319.44	0.70	3.88	7.45	1.06	2.86	92.66	36.61	1.39	130.65
0.48	333.33	0.73	4.05	7.77	1.14	3.11	100.26	36.61	1.51	138.38
0.50	347.22	0.76	4.22	8.09	1.23	3.38	108.13	36.61	1.64	146.38
0.52	361.11	0.79	4.39	8.42	1.33	3.65	116.27	36.61	1.77	154.66
0.54	375.00	0.83	4.56	8.74	1.42	3.94	124.69	36.61	1.91	163.21
0.56	388.89	0.86	4.73	9.06	1.52	4.24	133.39	36.61	2.06	172.04
0.58	402.78	0.89	4.90	9.39	1.63	4.54	142.33	36.61	2.20	181.15
0.60	416.67	0.92	5.07	9.71	1.73	4.86	151.56	36.61	2.36	190.53
0.62	430.56	0.95	5.24	10.04	1.84	5.19	161.04	36.61	2.52	200.17
0.64	444.44	0.98	5.40	10.36	1.95	5.53	170.80	36.61	2.68	210.09
0.66	458.33	1.01	5.57	10.68	2.06	5.88	180.81	36.61	2.86	220.26
0.68	472.22	1.04	5.74	11.01	2.18	6.25	191.09	36.61	3.03	230.73
0.70	486.11	1.07	5.91	11.33	2.30	6.62	201.63	36.61	3.21	241.45
0.72	500.00	1.10	6.08	11.65	2.43	7.00	212.42	36.61	3.40	252.43
0.74	513.89	1.13	6.25	11.98	2.55	7.40	223.48	36.61	3.59	263.66
0.76	527.78	1.16	6.42	12.30	2.68	7.80	234.79	36.61	3.79	275.19
0.78	541.67	1.19	6.59	12.63	2.81	8.22	246.36	36.61	3.99	286.96
0.80	555.56	1.22	6.76	12.95	2.95	8.64	258.19	36.61	4.19	298.99

Maximum Head System Curve 6" Force Main C-120										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.61	0.00	36.61
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.35	36.61	0.00	36.96
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.25	36.61	0.01	37.87
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.65	36.61	0.02	39.28
0.08	55.56	0.12	0.68	1.29	0.04	0.09	4.52	36.61	0.04	41.17
0.10	69.44	0.15	0.84	1.62	0.06	0.14	6.83	36.61	0.07	43.50
0.12	83.33	0.18	1.01	1.94	0.09	0.19	9.57	36.61	0.09	46.27
0.14	97.22	0.21	1.18	2.27	0.12	0.26	12.73	36.61	0.13	49.47
0.16	111.11	0.24	1.35	2.59	0.15	0.35	16.30	36.61	0.17	53.08
0.18	125.00	0.28	1.52	2.91	0.19	0.44	20.28	36.61	0.21	57.10
0.20	138.89	0.31	1.69	3.24	0.23	0.54	24.65	36.61	0.26	61.52
0.22	152.78	0.34	1.86	3.56	0.27	0.65	29.40	36.61	0.32	66.33
0.24	166.67	0.37	2.03	3.88	0.32	0.78	34.54	36.61	0.38	71.53
0.26	180.56	0.40	2.20	4.21	0.37	0.91	40.06	36.61	0.44	77.12
0.28	194.44	0.43	2.36	4.53	0.42	1.06	45.96	36.61	0.51	83.08
0.30	208.33	0.46	2.53	4.86	0.48	1.22	52.22	36.61	0.59	89.42
0.32	222.22	0.49	2.70	5.18	0.54	1.38	58.85	36.61	0.67	96.13
0.34	236.11	0.52	2.87	5.50	0.60	1.56	65.84	36.61	0.76	103.21
0.36	250.00	0.55	3.04	5.83	0.67	1.75	73.19	36.61	0.85	110.65
0.38	263.89	0.58	3.21	6.15	0.74	1.95	80.90	36.61	0.95	118.46
0.40	277.78	0.61	3.38	6.47	0.82	2.16	88.96	36.61	1.05	126.62
0.42	291.67	0.64	3.55	6.80	0.89	2.38	97.37	36.61	1.16	135.14
0.44	305.56	0.67	3.72	7.12	0.97	2.61	106.13	36.61	1.27	144.01
0.46	319.44	0.70	3.88	7.45	1.06	2.86	115.24	36.61	1.39	153.24
0.48	333.33	0.73	4.05	7.77	1.14	3.11	124.69	36.61	1.51	162.81
0.50	347.22	0.76	4.22	8.09	1.23	3.38	134.48	36.61	1.64	172.73
0.52	361.11	0.79	4.39	8.42	1.33	3.65	144.61	36.61	1.77	183.00
0.54	375.00	0.83	4.56	8.74	1.42	3.94	155.06	36.61	1.91	193.60
0.56	388.89	0.86	4.73	9.06	1.52	4.24	165.89	36.61	2.06	204.55
0.58	402.78	0.89	4.90	9.39	1.63	4.54	177.02	36.61	2.20	215.84
0.60	416.67	0.92	5.07	9.71	1.73	4.86	188.49	36.61	2.36	227.46
0.62	430.56	0.95	5.24	10.04	1.84	5.19	200.29	36.61	2.52	239.42
0.64	444.44	0.98	5.40	10.36	1.95	5.53	212.42	36.61	2.68	251.72
0.66	458.33	1.01	5.57	10.68	2.06	5.88	224.88	36.61	2.86	264.35
0.68	472.22	1.04	5.74	11.01	2.18	6.25	237.66	36.61	3.03	277.30
0.70	486.11	1.07	5.91	11.33	2.30	6.62	250.77	36.61	3.21	290.59
0.72	500.00	1.10	6.08	11.65	2.43	7.00	264.20	36.61	3.40	304.21
0.74	513.89	1.13	6.25	11.98	2.55	7.40	277.95	36.61	3.59	318.15
0.76	527.78	1.16	6.42	12.30	2.68	7.80	292.02	36.61	3.79	332.42
0.78	541.67	1.19	6.59	12.63	2.81	8.22	306.41	36.61	3.99	347.01
0.80	555.56	1.22	6.76	12.95	2.95	8.64	321.12	36.61	4.19	361.92



Average Head System Curve for Pipe Main C=150										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.90	0.00	33.90
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.23	33.90	0.00	34.13
0.04	27.78	0.06	0.34	0.65	0.01	0.02	0.83	33.90	0.01	34.74
0.06	41.67	0.09	0.51	0.97	0.02	0.05	1.75	33.90	0.02	35.68
0.08	55.56	0.12	0.68	1.29	0.04	0.09	2.99	33.90	0.04	36.93
0.10	69.44	0.15	0.84	1.62	0.06	0.14	4.52	33.90	0.07	38.48
0.12	83.33	0.18	1.01	1.94	0.09	0.19	6.33	33.90	0.09	40.33
0.14	97.22	0.21	1.18	2.27	0.12	0.26	8.42	33.90	0.13	42.45
0.16	111.11	0.24	1.35	2.59	0.15	0.35	10.78	33.90	0.17	44.85
0.18	125.00	0.28	1.52	2.91	0.19	0.44	13.41	33.90	0.21	47.53
0.20	138.89	0.31	1.69	3.24	0.23	0.54	16.30	33.90	0.26	50.47
0.22	152.78	0.34	1.86	3.56	0.27	0.65	19.45	33.90	0.32	53.67
0.24	166.67	0.37	2.03	3.88	0.32	0.78	22.85	33.90	0.38	57.13
0.26	180.56	0.40	2.20	4.21	0.37	0.91	26.50	33.90	0.44	60.85
0.28	194.44	0.43	2.36	4.53	0.42	1.06	30.40	33.90	0.51	64.81
0.30	208.33	0.46	2.53	4.86	0.48	1.22	34.54	33.90	0.59	69.03
0.32	222.22	0.49	2.70	5.18	0.54	1.38	38.93	33.90	0.67	73.50
0.34	236.11	0.52	2.87	5.50	0.60	1.56	43.55	33.90	0.76	78.21
0.36	250.00	0.55	3.04	5.83	0.67	1.75	48.42	33.90	0.85	83.17
0.38	263.89	0.58	3.21	6.15	0.74	1.95	53.52	33.90	0.95	88.36
0.40	277.78	0.61	3.38	6.47	0.82	2.16	58.85	33.90	1.05	93.80
0.42	291.67	0.64	3.55	6.80	0.89	2.38	64.41	33.90	1.16	99.47
0.44	305.56	0.67	3.72	7.12	0.97	2.61	70.21	33.90	1.27	105.38
0.46	319.44	0.70	3.88	7.45	1.06	2.86	76.23	33.90	1.39	111.52
0.48	333.33	0.73	4.05	7.77	1.14	3.11	82.48	33.90	1.51	117.89
0.50	347.22	0.76	4.22	8.09	1.23	3.38	88.96	33.90	1.64	124.50
0.52	361.11	0.79	4.39	8.42	1.33	3.65	95.66	33.90	1.77	131.34
0.54	375.00	0.83	4.56	8.74	1.42	3.94	102.59	33.90	1.91	138.40
0.56	388.89	0.86	4.73	9.06	1.52	4.24	109.74	33.90	2.06	145.69
0.58	402.78	0.89	4.90	9.39	1.63	4.54	117.10	33.90	2.20	153.21
0.60	416.67	0.92	5.07	9.71	1.73	4.86	124.69	33.90	2.36	160.95
0.62	430.56	0.95	5.24	10.04	1.84	5.19	132.50	33.90	2.52	168.92
0.64	444.44	0.98	5.40	10.36	1.95	5.53	140.52	33.90	2.68	177.11
0.66	458.33	1.01	5.57	10.68	2.06	5.88	148.76	33.90	2.86	185.52
0.68	472.22	1.04	5.74	11.01	2.18	6.25	157.22	33.90	3.03	194.15
0.70	486.11	1.07	5.91	11.33	2.30	6.62	165.89	33.90	3.21	203.00
0.72	500.00	1.10	6.08	11.65	2.43	7.00	174.77	33.90	3.40	212.07
0.74	513.89	1.13	6.25	11.98	2.55	7.40	183.87	33.90	3.59	221.36
0.76	527.78	1.16	6.42	12.30	2.68	7.80	193.17	33.90	3.79	230.86
0.78	541.67	1.19	6.59	12.63	2.81	8.22	202.69	33.90	3.99	240.58
0.80	555.56	1.22	6.76	12.95	2.95	8.64	212.42	33.90	4.19	250.52

Average Head System Curve 6" Force Main C=195										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.90	0.00	33.90
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.28	33.90	0.00	34.18
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.01	33.90	0.01	34.92
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.13	33.90	0.02	36.06
0.08	55.56	0.12	0.68	1.29	0.04	0.09	3.63	33.90	0.04	37.57
0.10	69.44	0.15	0.84	1.62	0.06	0.14	5.49	33.90	0.07	39.46
0.12	83.33	0.18	1.01	1.94	0.09	0.19	7.69	33.90	0.09	41.69
0.14	97.22	0.21	1.18	2.27	0.12	0.26	10.24	33.90	0.13	44.27
0.16	111.11	0.24	1.35	2.59	0.15	0.35	13.11	33.90	0.17	47.18
0.18	125.00	0.28	1.52	2.91	0.19	0.44	16.30	33.90	0.21	50.42
0.20	138.89	0.31	1.69	3.24	0.23	0.54	19.82	33.90	0.26	53.98
0.22	152.78	0.34	1.86	3.56	0.27	0.65	23.64	33.90	0.32	57.86
0.24	166.67	0.37	2.03	3.88	0.32	0.78	27.77	33.90	0.38	62.05
0.26	180.56	0.40	2.20	4.21	0.37	0.91	32.21	33.90	0.44	66.56
0.28	194.44	0.43	2.36	4.53	0.42	1.06	36.95	33.90	0.51	71.36
0.30	208.33	0.46	2.53	4.86	0.48	1.22	41.99	33.90	0.59	76.48
0.32	222.22	0.49	2.70	5.18	0.54	1.38	47.32	33.90	0.67	81.89
0.34	236.11	0.52	2.87	5.50	0.60	1.56	52.94	33.90	0.76	87.60
0.36	250.00	0.55	3.04	5.83	0.67	1.75	58.85	33.90	0.85	93.60
0.38	263.89	0.58	3.21	6.15	0.74	1.95	65.05	33.90	0.95	99.89
0.40	277.78	0.61	3.38	6.47	0.82	2.16	71.53	33.90	1.05	106.48
0.42	291.67	0.64	3.55	6.80	0.89	2.38	78.29	33.90	1.16	113.35
0.44	305.56	0.67	3.72	7.12	0.97	2.61	85.34	33.90	1.27	120.50
0.46	319.44	0.70	3.88	7.45	1.06	2.86	92.66	33.90	1.39	127.84
0.48	333.33	0.73	4.05	7.77	1.14	3.11	100.26	33.90	1.51	135.67
0.50	347.22	0.76	4.22	8.09	1.23	3.38	108.13	33.90	1.64	143.67
0.52	361.11	0.79	4.39	8.42	1.33	3.65	116.27	33.90	1.77	151.95
0.54	375.00	0.83	4.56	8.74	1.42	3.94	124.69	33.90	1.91	160.50
0.56	388.89	0.86	4.73	9.06	1.52	4.24	133.38	33.90	2.06	169.33
0.58	402.78	0.89	4.90	9.39	1.63	4.54	142.33	33.90	2.20	178.44
0.60	416.67	0.92	5.07	9.71	1.73	4.86	151.56	33.90	2.36	187.82
0.62	430.56	0.95	5.24	10.04	1.84	5.19	161.04	33.90	2.52	197.46
0.64	444.44	0.98	5.40	10.36	1.95	5.53	170.80	33.90	2.68	207.38
0.66	458.33	1.01	5.57	10.68	2.06	5.88	180.81	33.90	2.86	217.57
0.68	472.22	1.04	5.74	11.01	2.18	6.25	191.09	33.90	3.03	228.02
0.70	486.11	1.07	5.91	11.33	2.30	6.62	201.63	33.90	3.21	238.74
0.72	500.00	1.10	6.08	11.65	2.43	7.00	212.42	33.90	3.40	249.72
0.74	513.89	1.13	6.25	11.98	2.55	7.40	223.48	33.90	3.59	260.97
0.76	527.78	1.16	6.42	12.30	2.68	7.80	234.79	33.90	3.79	272.48
0.78	541.67	1.19	6.59	12.63	2.81	8.22	246.36	33.90	3.99	284.25
0.80	555.56	1.22	6.76	12.95	2.95	8.64	258.19	33.90	4.19	296.28

Average Head System Curve 6 Force/Main C-120										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.90	0.00	33.90
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.35	33.90	0.00	34.25
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.25	33.90	0.01	35.16
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.65	33.90	0.02	36.57
0.08	55.56	0.12	0.68	1.29	0.04	0.09	4.52	33.90	0.04	38.46
0.10	69.44	0.15	0.84	1.62	0.06	0.14	6.83	33.90	0.07	40.79
0.12	83.33	0.18	1.01	1.94	0.09	0.19	9.57	33.90	0.09	43.56
0.14	97.22	0.21	1.18	2.27	0.12	0.26	12.73	33.90	0.13	46.76
0.16	111.11	0.24	1.35	2.59	0.15	0.35	16.30	33.90	0.17	50.37
0.18	125.00	0.28	1.52	2.91	0.19	0.44	20.28	33.90	0.21	54.39
0.20	138.89	0.31	1.69	3.24	0.23	0.54	24.65	33.90	0.26	58.81
0.22	152.78	0.34	1.86	3.56	0.27	0.65	29.40	33.90	0.32	63.62
0.24	166.67	0.37	2.03	3.88	0.32	0.78	34.54	33.90	0.38	68.82
0.26	180.56	0.40	2.20	4.21	0.37	0.91	40.06	33.90	0.44	74.41
0.28	194.44	0.43	2.36	4.53	0.42	1.06	45.96	33.90	0.51	80.37
0.30	208.33	0.46	2.53	4.86	0.48	1.22	52.22	33.90	0.59	86.71
0.32	222.22	0.49	2.70	5.18	0.54	1.38	58.85	33.90	0.67	93.42
0.34	236.11	0.52	2.87	5.50	0.60	1.56	65.84	33.90	0.76	100.50
0.36	250.00	0.55	3.04	5.83	0.67	1.75	73.19	33.90	0.85	107.94
0.38	263.89	0.58	3.21	6.15	0.74	1.95	80.90	33.90	0.95	115.75
0.40	277.78	0.61	3.38	6.47	0.82	2.16	88.96	33.90	1.05	123.91
0.42	291.67	0.64	3.55	6.80	0.89	2.38	97.37	33.90	1.16	132.43
0.44	305.56	0.67	3.72	7.12	0.97	2.61	106.13	33.90	1.27	141.30
0.46	319.44	0.70	3.88	7.45	1.06	2.86	115.24	33.90	1.39	150.53
0.48	333.33	0.73	4.05	7.77	1.14	3.11	124.69	33.90	1.51	160.10
0.50	347.22	0.76	4.22	8.09	1.23	3.38	134.48	33.90	1.64	170.02
0.52	361.11	0.79	4.39	8.42	1.33	3.65	144.61	33.90	1.77	180.29
0.54	375.00	0.83	4.56	8.74	1.42	3.94	155.08	33.90	1.91	190.89
0.56	388.89	0.86	4.73	9.06	1.52	4.24	165.89	33.90	2.06	201.84
0.58	402.78	0.89	4.90	9.39	1.63	4.54	177.02	33.90	2.20	213.13
0.60	416.67	0.92	5.07	9.71	1.73	4.86	188.49	33.90	2.36	224.75
0.62	430.56	0.95	5.24	10.04	1.84	5.19	200.29	33.90	2.52	236.71
0.64	444.44	0.98	5.40	10.36	1.95	5.53	212.42	33.90	2.68	249.01
0.66	458.33	1.01	5.57	10.68	2.06	5.88	224.88	33.90	2.86	261.64
0.68	472.22	1.04	5.74	11.01	2.18	6.25	237.66	33.90	3.03	274.59
0.70	486.11	1.07	5.91	11.33	2.30	6.62	250.77	33.90	3.21	287.88
0.72	500.00	1.10	6.08	11.65	2.43	7.00	264.20	33.90	3.40	301.50
0.74	513.89	1.13	6.25	11.98	2.55	7.40	277.95	33.90	3.59	315.44
0.76	527.78	1.16	6.42	12.30	2.68	7.80	292.02	33.90	3.79	329.71
0.78	541.67	1.19	6.59	12.63	2.81	8.22	306.41	33.90	3.99	344.30
0.80	555.56	1.22	6.76	12.95	2.95	8.64	321.12	33.90	4.19	359.21

Minimum Head System Curve 6" Riser Main C=150										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.08	0.00	29.08
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.23	29.08	0.00	29.32
0.04	27.78	0.06	0.34	0.65	0.01	0.02	0.83	29.08	0.01	29.95
0.06	41.67	0.09	0.51	0.97	0.02	0.05	1.75	29.08	0.02	30.93
0.08	55.56	0.12	0.68	1.29	0.04	0.09	2.99	29.08	0.04	32.24
0.10	69.44	0.15	0.84	1.62	0.06	0.14	4.52	29.08	0.07	33.86
0.12	83.33	0.18	1.01	1.94	0.09	0.19	6.33	29.08	0.09	35.79
0.14	97.22	0.21	1.18	2.27	0.12	0.26	8.42	29.08	0.13	38.01
0.16	111.11	0.24	1.35	2.59	0.15	0.35	10.78	29.08	0.17	40.53
0.18	125.00	0.28	1.52	2.91	0.19	0.44	13.41	29.08	0.21	43.33
0.20	138.89	0.31	1.69	3.24	0.23	0.54	16.30	29.08	0.26	46.41
0.22	152.78	0.34	1.86	3.56	0.27	0.65	19.45	29.08	0.32	49.77
0.24	166.67	0.37	2.03	3.88	0.32	0.78	22.85	29.08	0.38	53.40
0.26	180.56	0.40	2.20	4.21	0.37	0.91	26.50	29.08	0.44	57.31
0.28	194.44	0.43	2.36	4.53	0.42	1.06	30.40	29.08	0.51	61.48
0.30	208.33	0.46	2.53	4.86	0.48	1.22	34.54	29.08	0.59	65.91
0.32	222.22	0.49	2.70	5.18	0.54	1.38	38.93	29.08	0.67	70.60
0.34	236.11	0.52	2.87	5.50	0.60	1.56	43.55	29.08	0.76	75.56
0.36	250.00	0.55	3.04	5.83	0.67	1.75	48.42	29.08	0.85	80.77
0.38	263.89	0.58	3.21	6.15	0.74	1.95	53.52	29.08	0.95	86.24
0.40	277.78	0.61	3.38	6.47	0.82	2.16	58.85	29.08	1.05	91.96
0.42	291.67	0.64	3.55	6.80	0.89	2.38	64.41	29.08	1.16	97.93
0.44	305.56	0.67	3.72	7.12	0.97	2.61	70.21	29.08	1.27	104.15
0.46	319.44	0.70	3.88	7.45	1.06	2.86	76.23	29.08	1.39	110.62
0.48	333.33	0.73	4.05	7.77	1.14	3.11	82.48	29.08	1.51	117.33
0.50	347.22	0.76	4.22	8.09	1.23	3.38	88.96	29.08	1.64	124.29
0.52	361.11	0.79	4.39	8.42	1.33	3.65	95.66	29.08	1.77	131.50
0.54	375.00	0.83	4.56	8.74	1.42	3.94	102.59	29.08	1.91	138.94
0.56	388.89	0.86	4.73	9.06	1.52	4.24	109.74	29.08	2.06	146.63
0.58	402.78	0.89	4.90	9.39	1.63	4.54	117.10	29.08	2.20	154.56
0.60	416.67	0.92	5.07	9.71	1.73	4.86	124.69	29.08	2.36	162.72
0.62	430.56	0.95	5.24	10.04	1.84	5.19	132.50	29.08	2.52	171.13
0.64	444.44	0.98	5.40	10.36	1.95	5.53	140.52	29.08	2.68	179.77
0.66	458.33	1.01	5.57	10.68	2.06	5.88	148.76	29.08	2.86	188.64
0.68	472.22	1.04	5.74	11.01	2.18	6.25	157.22	29.08	3.03	197.75
0.70	486.11	1.07	5.91	11.33	2.30	6.62	165.89	29.08	3.21	207.10
0.72	500.00	1.10	6.08	11.65	2.43	7.00	174.77	29.08	3.40	216.68
0.74	513.89	1.13	6.25	11.98	2.55	7.40	183.87	29.08	3.59	226.48
0.76	527.78	1.16	6.42	12.30	2.68	7.80	193.17	29.08	3.79	236.52
0.78	541.67	1.19	6.59	12.63	2.81	8.22	202.69	29.08	3.99	246.79
0.80	555.56	1.22	6.76	12.95	2.95	8.64	212.42	29.08	4.19	257.29

Minimum Head System Curve 6" Trade Main Q=195										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.08	0.00	29.08
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.28	29.08	0.00	29.37
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.01	29.08	0.01	30.13
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.13	29.08	0.02	31.31
0.08	55.56	0.12	0.68	1.29	0.04	0.09	3.63	29.08	0.04	32.88
0.10	69.44	0.15	0.84	1.62	0.06	0.14	5.49	29.08	0.07	34.83
0.12	83.33	0.18	1.01	1.94	0.09	0.19	7.69	29.08	0.09	37.15
0.14	97.22	0.21	1.18	2.27	0.12	0.26	10.24	29.08	0.13	39.83
0.16	111.11	0.24	1.35	2.59	0.15	0.35	13.11	29.08	0.17	42.85
0.18	125.00	0.28	1.52	2.91	0.19	0.44	16.30	29.08	0.21	46.22
0.20	138.89	0.31	1.69	3.24	0.23	0.54	19.82	29.08	0.26	49.92
0.22	152.78	0.34	1.86	3.56	0.27	0.65	23.64	29.08	0.32	53.96
0.24	166.67	0.37	2.03	3.88	0.32	0.78	27.77	29.08	0.38	58.33
0.26	180.56	0.40	2.20	4.21	0.37	0.91	32.21	29.08	0.44	63.02
0.28	194.44	0.43	2.36	4.53	0.42	1.06	36.95	29.08	0.51	68.03
0.30	208.33	0.46	2.53	4.86	0.48	1.22	41.99	29.08	0.59	73.35
0.32	222.22	0.49	2.70	5.18	0.54	1.38	47.32	29.08	0.67	78.99
0.34	236.11	0.52	2.87	5.50	0.60	1.56	52.94	29.08	0.76	84.94
0.36	250.00	0.55	3.04	5.83	0.67	1.75	58.85	29.08	0.85	91.20
0.38	263.89	0.58	3.21	6.15	0.74	1.95	65.05	29.08	0.95	97.77
0.40	277.78	0.61	3.38	6.47	0.82	2.16	71.53	29.08	1.05	104.63
0.42	291.67	0.64	3.55	6.80	0.89	2.38	78.29	29.08	1.16	111.80
0.44	305.56	0.67	3.72	7.12	0.97	2.61	85.34	29.08	1.27	119.27
0.46	319.44	0.70	3.88	7.45	1.06	2.86	92.66	29.08	1.39	127.04
0.48	333.33	0.73	4.05	7.77	1.14	3.11	100.26	29.08	1.51	135.10
0.50	347.22	0.76	4.22	8.09	1.23	3.38	108.13	29.08	1.64	143.46
0.52	361.11	0.79	4.39	8.42	1.33	3.65	116.27	29.08	1.77	152.11
0.54	375.00	0.83	4.56	8.74	1.42	3.94	124.69	29.08	1.91	161.04
0.56	388.89	0.86	4.73	9.06	1.52	4.24	133.38	29.08	2.06	170.27
0.58	402.78	0.89	4.90	9.39	1.63	4.54	142.33	29.08	2.20	179.79
0.60	416.67	0.92	5.07	9.71	1.73	4.86	151.56	29.08	2.36	189.59
0.62	430.56	0.95	5.24	10.04	1.84	5.19	161.04	29.08	2.52	199.67
0.64	444.44	0.98	5.40	10.36	1.95	5.53	170.80	29.08	2.68	210.04
0.66	458.33	1.01	5.57	10.68	2.06	5.88	180.81	29.08	2.86	220.69
0.68	472.22	1.04	5.74	11.01	2.18	6.25	191.09	29.08	3.03	231.63
0.70	486.11	1.07	5.91	11.33	2.30	6.62	201.63	29.08	3.21	242.84
0.72	500.00	1.10	6.08	11.65	2.43	7.00	212.42	29.08	3.40	254.33
0.74	513.89	1.13	6.25	11.98	2.55	7.40	223.48	29.08	3.59	266.10
0.76	527.78	1.16	6.42	12.30	2.68	7.80	234.79	29.08	3.79	278.14
0.78	541.67	1.19	6.59	12.63	2.81	8.22	246.36	29.08	3.99	290.46
0.80	555.56	1.22	6.76	12.95	2.95	8.64	258.19	29.08	4.19	303.06

Minimum Head System Curve for Force Main C=120										
Flow (MGD)	Flow (gpm)	Flow (cfs)	Velocity in FM (fps)	Velocity in Suction Pipe (fps)	Suction Pipe Friction Headloss (ft)	Minor Loss in Suction Pipe (ft)	Pipe Friction Headloss in FM (ft)	Static Head (FT)	Minor Loss in FM (ft)	TDH (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.08	0.00	29.08
0.02	13.89	0.03	0.17	0.32	0.00	0.01	0.35	29.08	0.00	29.44
0.04	27.78	0.06	0.34	0.65	0.01	0.02	1.25	29.08	0.01	30.37
0.06	41.67	0.09	0.51	0.97	0.02	0.05	2.65	29.08	0.02	31.83
0.08	55.56	0.12	0.68	1.29	0.04	0.09	4.52	29.08	0.04	33.77
0.10	69.44	0.15	0.84	1.62	0.06	0.14	6.83	29.08	0.07	36.17
0.12	83.33	0.18	1.01	1.94	0.09	0.19	9.57	29.08	0.09	39.03
0.14	97.22	0.21	1.18	2.27	0.12	0.26	12.73	29.08	0.13	42.32
0.16	111.11	0.24	1.35	2.59	0.15	0.35	16.30	29.08	0.17	46.05
0.18	125.00	0.28	1.52	2.91	0.19	0.44	20.28	29.08	0.21	50.19
0.20	138.89	0.31	1.69	3.24	0.23	0.54	24.65	29.08	0.26	54.75
0.22	152.78	0.34	1.86	3.56	0.27	0.65	29.40	29.08	0.32	59.72
0.24	166.67	0.37	2.03	3.88	0.32	0.78	34.54	29.08	0.38	65.10
0.26	180.56	0.40	2.20	4.21	0.37	0.91	40.06	29.08	0.44	70.87
0.28	194.44	0.43	2.36	4.53	0.42	1.06	45.96	29.08	0.51	77.03
0.30	208.33	0.46	2.53	4.86	0.48	1.22	52.22	29.08	0.59	83.58
0.32	222.22	0.49	2.70	5.18	0.54	1.38	58.85	29.08	0.67	90.52
0.34	236.11	0.52	2.87	5.50	0.60	1.56	65.84	29.08	0.76	97.84
0.36	250.00	0.55	3.04	5.83	0.67	1.75	73.19	29.08	0.85	105.54
0.38	263.89	0.58	3.21	6.15	0.74	1.95	80.90	29.08	0.95	113.62
0.40	277.78	0.61	3.38	6.47	0.82	2.16	88.96	29.08	1.05	122.07
0.42	291.67	0.64	3.55	6.80	0.89	2.38	97.37	29.08	1.16	130.89
0.44	305.56	0.67	3.72	7.12	0.97	2.61	106.13	29.08	1.27	140.07
0.46	319.44	0.70	3.88	7.45	1.06	2.86	115.24	29.08	1.39	149.62
0.48	333.33	0.73	4.05	7.77	1.14	3.11	124.69	29.08	1.51	159.54
0.50	347.22	0.76	4.22	8.09	1.23	3.38	134.48	29.08	1.64	169.81
0.52	361.11	0.79	4.39	8.42	1.33	3.65	144.61	29.08	1.77	180.45
0.54	375.00	0.83	4.56	8.74	1.42	3.94	155.08	29.08	1.91	191.44
0.56	388.89	0.86	4.73	9.06	1.52	4.24	165.89	29.08	2.06	202.78
0.58	402.78	0.89	4.90	9.39	1.63	4.54	177.02	29.08	2.20	214.48
0.60	416.67	0.92	5.07	9.71	1.73	4.86	188.49	29.08	2.36	226.53
0.62	430.56	0.95	5.24	10.04	1.84	5.19	200.29	29.08	2.52	238.92
0.64	444.44	0.98	5.40	10.36	1.95	5.53	212.42	29.08	2.68	251.67
0.66	458.33	1.01	5.57	10.68	2.06	5.88	224.88	29.08	2.86	264.76
0.68	472.22	1.04	5.74	11.01	2.18	6.25	237.66	29.08	3.03	278.20
0.70	486.11	1.07	5.91	11.33	2.30	6.62	250.77	29.08	3.21	291.98
0.72	500.00	1.10	6.08	11.65	2.43	7.00	264.20	29.08	3.40	306.10
0.74	513.89	1.13	6.25	11.98	2.55	7.40	277.95	29.08	3.59	320.57
0.76	527.78	1.16	6.42	12.30	2.68	7.80	292.02	29.08	3.79	335.37
0.78	541.67	1.19	6.59	12.63	2.81	8.22	306.41	29.08	3.99	350.51
0.80	555.56	1.22	6.76	12.95	2.95	8.64	321.12	29.08	4.19	365.99

# Abbott Road

From Flygt

NP3127 HT 3~ Adaptive 488

Average Pump

Flow (GPM)	Head (ft)
0	83
100	75
188	68.4
200	67.5
300	61
400	55
500	48.5
600	42.25
700	35.5
800	28.5
900	22

NP3171 SH 3~ 275

Peak Pump

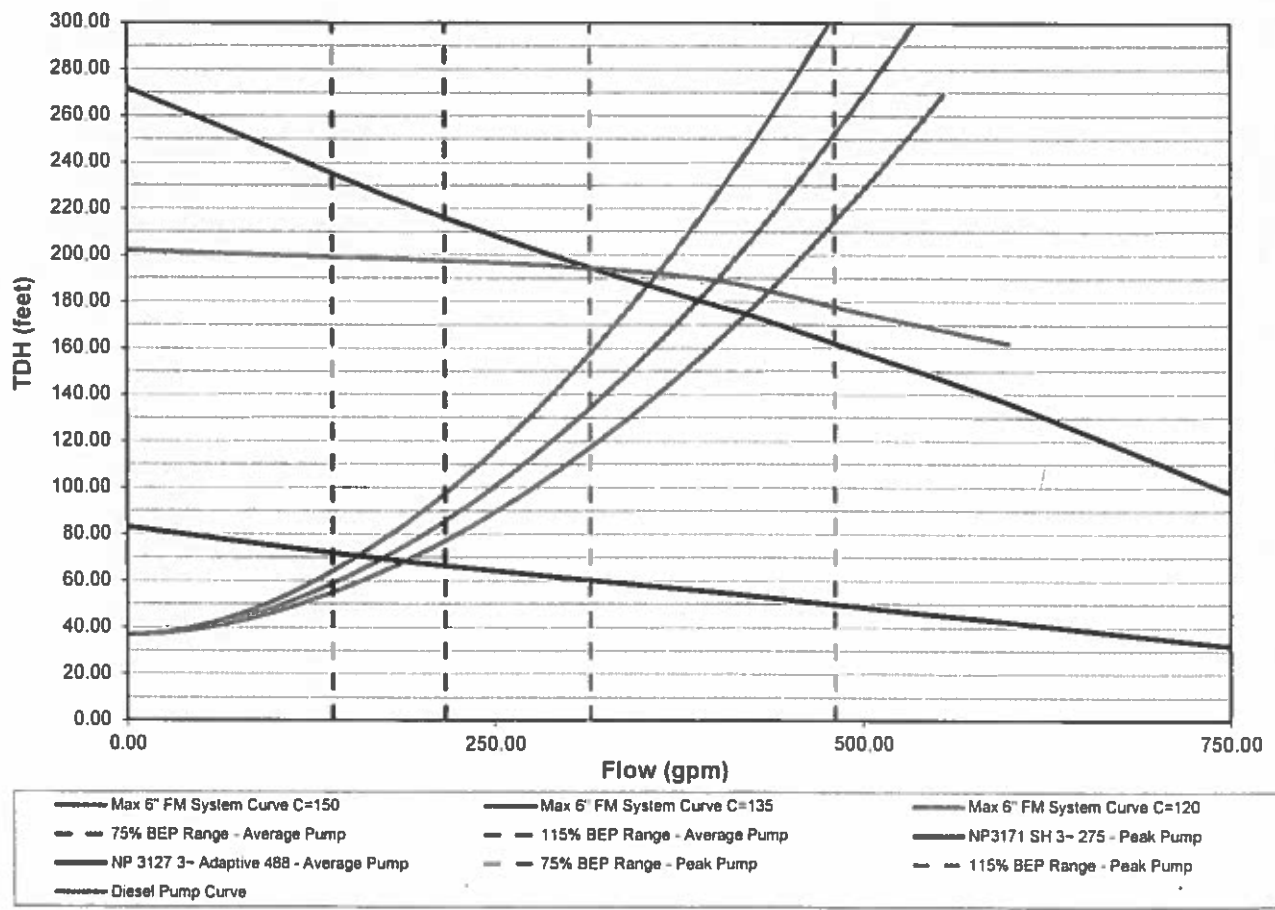
Flow (GPM)	Head (ft)
0	272
100	246
200	220
300	197.5
400	178
418	175
500	158
600	136.5
700	111
800	84

NP3171 SH 3~ 275

Diesel Pump

Flow (GPM)	Head (ft)
0	202
100	200
200	198
300	195
400	189
500	175
600	162

**Figure 1: Abbott Rd LS System Curves to Martinez IV WWTP**





**Martinez IV Wastewater Discharge Permit Renewal 08/2019**  
**TPDES No. WQ0010749-007 (EPA I.D. TX0129861)**

## **Attachment 18**

### **Wind Rose**

**Reference: Domestic Technical Report 1.1**

### **Section 5 B**

SAT Annual 84-92

January 1

December 31

Midnight-11 PM

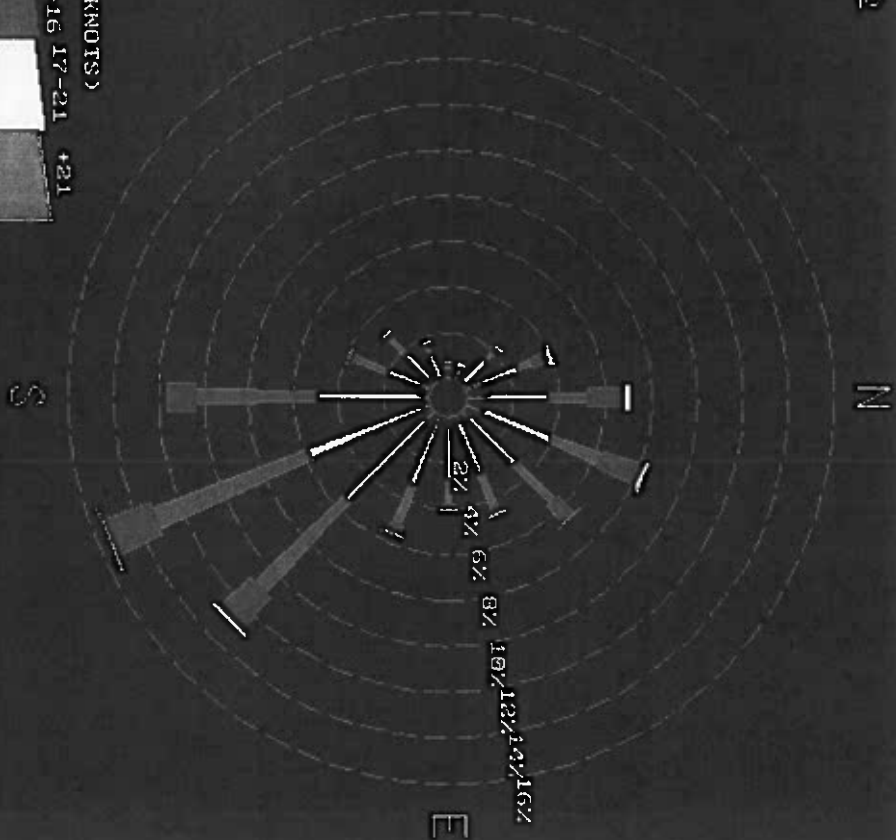
NOTE: Frequencies  
indicate direction  
from which the  
wind is blowing.

CALM WINDS 6.87%

WIND SPEED (KNOTS)

1-3 4-6 7-10 11-16 17-21 +21

CALMS



Martinez IV Wastewater Discharge Permit Renewal 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 19

### Sewage Sludge Solids Management Plan

Reference: Domestic Technical Report 1.1

### Section 7

## ATTACHMENT 19

### Sewage Sludge Solids Management Plan

#### Sewage Sludge Handling and Treatment Units/Processes:

Two - 6,500-gallon (each) tanker trucks to haul liquid sludge when necessary.

One - 3,300-gallon tanker truck to haul liquid sludge when necessary.

Two - 810 cubic feet (30 cubic yards each) dewatering boxes.

One - Polymer preparation and feed systems for the dewatering boxes.

Three - Roll-off trucks for transporting dewatering boxes.

#### Calculations of Dry Solids Generated at Final Design Flow (2.0 MGD):

Flow (% Total) MGD		BOD <sub>5</sub> Removed mg/L				BOD <sub>5</sub> Removed lbs				Dry Solids Produced lbs/day
2.0 (100%)	X	190	X	8.34	=	3,169	X	.70	=	2,218
1.5 (75%)	X	190	X	8.34	=	2,377	X	.70	=	1,664
1.0 (50%)	X	190	X	8.34	=	1,585	X	.70	=	1,109
0.5 (25%)	X	190	X	8.34	=	792	X	.70	=	555

#### Operating Range for Mixed Liquor Suspended Solids:

The projected operating range for mixed liquor suspended solids (MLSS) in the biological treatment zone will be 3,000 – 6,000 mg/l.

#### Solids Removal from Wastewater and Sludge Treatment Processes:

Activated sludge is thickened in the secondary clarifier to produce a 0.75 to 1.25 % TS waste activated sludge concentration by reducing the return activated sludge rates. It is then flow-controlled with RAS/WAS pumps and injected with polymer before entering one of the two on-site dewatering boxes. The two dewatering boxes can handle the existing phase I solids production. Sludge management needs will be evaluated at each expansion to determine additional required capacity (if any) needed to accommodate additional solids production. The following describes the final sludge disposal process in more detail.

**ATTACHMENT 19**  
**(cont'd)**  
**Sewage Sludge Solids Management Plan**

SARA maintains two (2) options for the final disposal of bio-solids at: (1) San Antonio River Authority permitted Gardenville/Martinez II Recycling Facility (WQ0010749-004) and (2) Allied Waste (BFI) Tessman Road Municipal Solid Waste Landfill, (TCEQ Permit No. 1410-A) as a back-up option. These methods are described as follows:

1. Dewatered sludge is transported and stabilized at the Gardenville/Martinez II Recycling Facility located on a San Antonio River Authority permitted site. At this facility, the dewatered sludge will either be composted or heat dried to a Class 'A' level of pathogen reduction meeting the Federal and State requirements for both pathogen reduction and vector attraction reduction. Both methods fall under "Alternative 5" of the 30 TAC Chapter 312 Class 'A' Pathogen Reduction, or a "Process to Further Reduce Pathogens" (PFRP) methods, and are described as follows:
  - a. Windrow Composting:
    - i. PFRP Pathogen Reduction Description: Dewatered sludge is windrow composted verifying that temperatures exceed 55 degrees Celsius for fifteen (15) days or longer with five (5) turnings during the high temperature period.
    - ii. Vector Attraction Reduction: By default, using the PFRP method described above, meeting 30 TAC Chapter 312 Vector Attraction Reduction compliance alternative (5) where the sewage sludge is treated in an aerobic process for 14 days or longer where the temperature of the sewage sludge is higher than 40 degrees Celsius and the average is above 45 degrees Celsius during that time.
    - iii. Fecal coliform densities are monitored to demonstrate that concentrations are less than 1,000 Most Probable Number per gram of total solids (dry weight basis).
  - b. Heat Drying:
    - i. PFRP Pathogen Reduction Description: The sewage sludge is dried with direct or indirect hot gases to reduce the moisture content of the material to 10 % or less, and the temperature of the sludge exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sludge as the bio-solids leave the dryer exceeds 80 degrees Celsius.
    - ii. Vector Attraction Reduction: Met using the PFRP method described above, vector attraction reduction method 30 TAC Chapter 312 Vector Attraction Reduction compliance alternative (8) is met by drying the sewage sludge to 90 % or greater total solids content.
    - iii. Fecal coliform densities will be monitored to demonstrate that concentrations are less than 1,000 Most Probable Number per gram of total solids (dry weight basis).

**ATTACHMENT 19**  
**(cont'd)**  
**Sewage Sludge Solids Management Plan**

Bio-solids treated to Class 'A' levels described above will be distributed and marketed to wholesale and retail customers in the landscaping market.

2. Dewatered bio-solids from the Martinez IV WWTP may also be disposed at the Allied Waste (BFI) Tessman Road Municipal Solid Waste Landfill, (TCEQ Permit No. 1410-A) for final disposal should the option described above not be available.

**Quantity and Schedule of Solids Removal:**

Sludge will be removed from the system as needed, based on information obtained from process control practices. Tests will be conducted at weekly and daily intervals to determine the quality, concentration, and settleability of the sludge. Based on these sound principles, sludge will be removed from the process to obtain the best quality effluent the plant can produce.

As described previously, sludge removed from the process will be trucked away for further treatment and reuse or disposal.

**Identification/ of Disposal Site and Solids Disposal Documentation:**

**Disposal Sites:**

As described earlier, the dewatered sludge may either be processed at the Martinez II WWTP to a Class 'A' level, followed by distribution and marketing of the end products. The Martinez II WWTP is located at 1720 South Farm-to-Market (F.M.) Road 1516, approximately 1.6 miles south-southeast of the intersection of Interstate Highway (I.H.) 10 and F.M. Road 1516 in Bexar County Texas (Latitude: 29 degrees 26' 05" N / Longitude: 98 degrees 19' 03" W).

The Republic Services (BFI) Landfill site is located west of F.M. 1516 at 7790 Tessman Road, approximately 2.25 miles south of the intersection of I.H. 10 and F.M. 1516 in Bexar County, Texas (Latitude: 29 degrees 26' 00" N / Longitude: 98 degrees 20' 24" W).

**System of Documentation:**

The quantity of waste activated sludge transported away from the treatment facility is documented. Representative samples of the sludge are tested for percent total solids (%TS) content, and the total gallons are then multiplied by 8.34 and the % TS concentration to determine the dry weight in pounds.

Martinez IV Wastewater Discharge Permit Amendment 08/2019  
TPDES No. WQ0010749-007 (EPA I.D. TX0129861)

## Attachment 20

### Pollutant Analyses Requirements

Reference: Domestic Worksheet 4.0

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019 Approved by: <i>Chuck Wallgren</i> Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Ammonia-N (ISE)	0.3	mg/L	0.1	04/25/2019 12:45	SM 4500-NH3 D	CRM
CBOD5	<2	mg/L	2	04/24/2019 13:29	SM 5210 B	VBW
Chloride	317	mg/L	1	04/25/2019 13:15	EPA 300.0	PLP
Conductivity, Specific	1,928	µmhos/cm at 25° C	1	04/24/2019 14:20	SM 2510B	JAS
Nitrate-N	13.5	mg/L	0.1	04/25/2019 13:15	EPA 300.0	PLP
Phosphorus, Total	3.23	mg/L	0.10	04/26/2019 06:10	SM 4500-P/B/E	JAS
Sulfate	205	mg/L	1	04/25/2019 13:15	EPA 300.0	PLP

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Ammonia-N (ISE)	<1	10	95	108	108	114	102	85 - 115
CBOD5	<1	~23	N/A	N/A	N/A	N/A	181	167 - 228
Chloride	1	10	92	99	98	102	103	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N	<1	20	70	101	101	130	106	85 - 115
Phosphorus, Total	2	10	94	99	97	102	112	85 - 115
Sulfate	3	10	93	100	97	102	103	85 - 115

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits  
 QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcsab.net](mailto:chuck@pcsab.net)

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.



# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Total Dissolved Solids	1,052	mg/L	10	04/29/2019	11:50	SM 2540C JAS
Total Suspended Solids	2	mg/L	1	04/24/2019	13:30	SM 2540 D CFS
Fluoride	0.26	mg/L	0.10	04/25/2019	13:15	EPA 300.0 PLP
Kjeldahl-N, Total	2	mg/L	1	04/25/2019	09:00	SM 4500-N B/E CRM
Alkalinity, Total	184	mg/L	10	04/24/2019	12:00	SM 2320 B CRM
Arsenic/ICP MS	0.0008	mg/L	0.0005	04/29/2019	12:16	EPA 200.8 DJL
Barium/ICP (Total)	0.044	mg/L	0.003	04/30/2019	14:42	EPA 200.7 / 6010 B DJL

### Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Suspended Solids	<1	10	N/A			N/A		
Fluoride	<1	10	83	100	100	108	102	85 - 115
Kjeldahl-N, Total	5	10	92	96	101	109	106	85 - 115
Alkalinity, Total	<1	10	95	101	101	107	104	85 - 115
Arsenic/ICP MS	2	20	70	109	107	130	107	85 - 115
Barium/ICP (Total)	<1	20	75	89	89	125	105	85 - 115

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits

QC Data Reported in %, Except BOD in mg/L

Web Site: www.pcslab.net  
 e-mail: chuck@pcslab.net

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Cadmium/ICP (Total)	0.001	mg/L	0.001	04/30/2019	14:42	EPA 200.7 / 6010 B DIL
Chromium/ICP (Total)	<0.003	mg/L	0.003	04/30/2019	14:42	EPA 200.7 / 6010 B DIL
Copper/ICP (Total)	0.004	mg/L	0.002	04/30/2019	14:42	EPA 200.7 / 6010 B DIL
Lead/ICP MS	<0.0005	mg/L	0.0005	04/29/2019	12:16	EPA 200.8 DIL
Aluminum/ICP (Total)	0.024	mg/L	0.0025	04/30/2019	14:42	EPA 200.7 / 6010 B DIL
Beryllium/ICP (Total)	<0.0005	mg/L	0.0005	04/30/2019	14:42	EPA 200.7 / 6010 B DIL
Trivalent Chromium	<0.003	mg/L	N/A	04/30/2019	14:42	Calculation DIL

Test Description	Quality Assurance Summary					
	Precision	Limit	LCL	MS	MSD	UCL
Cadmium/ICP (Total)	1	20	75	94	95	125
Chromium/ICP (Total)	<1	20	75	95	95	125
Copper/ICP (Total)	<1	20	75	97	97	125
Lead/ICP MS	<1	20	70	108	108	130
Aluminum/ICP (Total)	<1	20	75	106	106	125
Beryllium/ICP (Total)	1	20	75	97	98	125
Trivalent Chromium	N/A	N/A	N/A			N/A

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits  
 QC Data Reported in %, Except BOD in mg/L

Web Site: www.pcslab.net  
 e-mail: chuck@pcsab.net

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
Hexavalent Chrome	R	<0.003	mg/L	0.003	04/25/2019	06:40	SM 3500-Cr D
Zinc/ICP (Total)		0.130	mg/L	0.010	04/30/2019	14:42	EPA 200.7 / 6010 B
Antimony/ICP MS		<0.005	mg/L	0.005	05/01/2019	09:34	EPA 200.8
Thallium/ICP MS		<0.0005	mg/L	0.0005	04/29/2019	12:16	EPA 200.8
Nickel/ICP MS		<0.002	mg/L	0.002	04/29/2019	12:16	EPA 200.8
Selenium/ICP MS		<0.005	mg/L	0.005	04/29/2019	12:16	EPA 200.8
Silver/ICP MS		<0.0005	mg/L	0.0005	04/29/2019	12:16	EPA 200.8

Test Description	Quality Assurance Summary						
	Precision	Limit	LCL	MS	MSD	UCL	LCS LCS Limit
Hexavalent Chrome	1	20	75	*40	*40	125	99 85 - 115
Zinc/ICP (Total)	1	20	75	97	98	125	105 85 - 115
Antimony/ICP MS	<1	20	70	104	104	130	106 85 - 115
Thallium/ICP MS	<1	20	70	107	107	130	104 85 - 115
Nickel/ICP MS	2	20	70	91	89	130	101 85 - 115
Selenium/ICP MS	3	20	70	104	101	130	101 85 - 115
Silver/ICP MS	3	20	70	93	96	130	110 85 - 115

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

R Spike recovery outside control limits due to matrix effect - LCS within limits  
 \* Approved for release per QA Plan, Exception to Limits - QAM Section 13-4

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits  
 QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcsab.net](mailto:chuck@pcsab.net)

Toll Free 800-880-4616  
 1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0730	PCS Sample #: 551099 Date/Time Received: 04/24/2019 11:35 Report Date: 05/10/2019

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Pesticides 617	See Attached					Pace Analytical Services - Dallas
604.1 Hexachlorophene	See Attached					Pace Analytical Services - Dallas
Semi Volatiles 625	See Attached					Pace Analytical Services - Dallas
Pesticides 632	See Attached					Pace Analytical Services - Dallas
Pesticide 1657	See Attached					Pace Analytical Services - Dallas
Herbicides 615	See Attached					Pace Analytical Services - Dallas
608 PCBs	See Attached					Pace Analytical Services - Dallas

Test Description	Quality Assurance Summary						LCS LCS Limit
	Precision	Limit	LCL	MS	MSD	UCL	
Pesticides 617	See Attached Report for Quality Assurance Information						
604.1 Hexachlorophene	See Attached Report for Quality Assurance Information						
Semi Volatiles 625	See Attached Report for Quality Assurance Information						
Pesticides 632	See Attached Report for Quality Assurance Information						
Pesticide 1657	See Attached Report for Quality Assurance Information						
Herbicides 615	See Attached Report for Quality Assurance Information						
608 PCBs	See Attached Report for Quality Assurance Information						

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits  
 QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcsab.net](mailto:chuck@pcsab.net)

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES



## Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Daniel Flores San Antonio River Authority 100 E. Guenther St San Antonio, TX 78204	Project Name: Martinez IV TCEQ Major Renewal Sample ID: Effluent Matrix: Non-Potable Water Date/Time Taken: 04/24/2019 0835	PCS Sample #: 551100 Date/Time Received: 04/24/2019 11:35 Report Date: 05/13/2019 Approved by: <i>Chuck Wallgren</i> Chuck Wallgren, President

Test/Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
Oil and Grease (H.E.M.)		<5.0	mg/L	5	04/26/2019 11:30	EPA 1664	EMV
Mercury/CV/AFS		<0.000005	mg/L	0.000005	05/09/2019 10:20	EPA 245.7	DJL
Phenolics	+	See Attached					Pace Analytical Services - Dallas
Cyanide, Amenable	+	See Attached					Pace Analytical Services - Dallas
Volatiles 624		See Attached					Pace Analytical Services - Dallas

Test Description	Quality Assurance Summary						
	Precision	Limit	LCL	MS	MSD	UCL	LCS LCS Limit
Oil and Grease (H.E.M.)	2	18	N/A	N/A	N/A	N/A	87 78 - 114
Mercury/CV/AFS	2	20	70			130	
Phenolics	See Attached Report for Quality Assurance Information						
Cyanide, Amenable	See Attached Report for Quality Assurance Information						
Volatiles 624	See Attached Report for Quality Assurance Information						

**Quality Statement:** All supporting quality control data adhered to data quality objectives and test results meet the requirements of NELAP unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

+ Subcontract Work - NELAP Certified Lab

These analytical results relate only to the sample tested.  
 All data is reported on an "As Is" basis unless designated as "Dry Wt."  
 RL = Reporting Limits  
 QC Data Reported in %, Except BOD in mg/L

Web Site: [www.pcslab.net](http://www.pcslab.net)  
 e-mail: [chuck@pcsab.net](mailto:chuck@pcsab.net)

Toll Free 800-880-4616

1532 Universal City Blvd, Suite 100  
 Universal City, TX 78148-3318

210-340-0343

FAX # 210-658-7903

This report cannot be reproduced or duplicated, except in full, without prior written consent from Pollution Control Services.

# POLLUTION CONTROL SERVICES

Chain of Custody Number

5 5 1 0 9 9

Stamp 1" sample and COC as same number

## MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

### CUSTOMER INFORMATION

Name: San Antonio River Authority

Attention: Russell Neal

Phone: (210) 844-0204

Fax: (210) 661-9324

### SAMPLE INFORMATION

#### Project Information:

Marinez IV - TCEQ Major Permit Renewal

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By: *See Nel*

#### Requested Analysis

#### Instructions/Comments:

\*Al, Ba, Be, Ca, Cr, Cu, Ni, Zn, SOMS, AsMS, PbMS, SeMS, AgMS, TMS

Client / Field Sample ID	Collected		Field Chlorine Residual mg/L	Composite or Grab	Matrix	Type	Number	Preservative	CBOD, TSS, TDS, SO4, Cl, SpCond, HexCr, Tricr, NO3N, Talk, F,	NH3N, TKN, TPO4P, Metals*	604.1 Hex, Herb 615, Pest 1657, 608, 617, 632, SVOC 625	FOG (HEM)	VOC 624	CN-A	Phenol (Dist)	Low Level Hg	PCS Sample Number	
	Date	Time																
Effluent	Start: 4-23-19	End: 4-23-19		<input checked="" type="checkbox"/> C	DW-Drinking Water, NPW-Non-potable water, WW-Wastewater, LW-Liquid Waste	GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> C		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
	Start: 4-24-19	End: 4-24-19		<input checked="" type="checkbox"/> G		GP	10	<input checked="" type="checkbox"/> H2SO4, <input checked="" type="checkbox"/> HNO3, <input checked="" type="checkbox"/> H3PO4, <input checked="" type="checkbox"/> NaOH										5 5 1 0 9 9
Effluent	Start: 4-24-19																	



Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

May 09, 2019

Chuck Wallgren  
Pollution Control Services  
1532 Universal City Blvd. #100  
Universal City, TX 78148

RE: Project: 551099  
Pace Project No.: 75107184

Dear Chuck Wallgren:

Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melissa McCullough  
melissa.mccullough@pacelabs.com  
(972)727-1123  
Project Manager

Enclosures

cc: Michael Klang



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

## CERTIFICATIONS

Project: 551099  
Pace Project No.: 75107184

---

### Dallas Certification IDs:

400 West Bethany Dr Suite 190, Allen, TX 75013  
Florida Certification #: E871118  
Texas T104704232-18-26  
EPA# TX00074  
Texas Certification #: T104704232-18-26

Kansas Certification #: E-10388  
Arkansas Certification #: 88-0647  
Oklahoma Certification #: 8727  
Louisiana Certification #: 30686  
Iowa Certification #: 408

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.





Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

### SAMPLE SUMMARY

Project: 551099  
Pace Project No.: 75107184

Lab ID	Sample ID	Matrix	Date Collected	Date Received
75107184001	551099	Water	04/24/19 07:30	04/25/19 10:30

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

### SAMPLE ANALYTE COUNT

Project: 551099  
Pace Project No.: 75107184

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
75107184001	551099	EPA 608	JL	28	PASI-D
		EPA 615	DAT	3	PASI-D
		EPA 604.1	NSR	2	PASI-D
		EPA 632	NSR	3	PASI-D
		EPA 625	XLY	69	PASI-D

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: 551099  
Pace Project No.: 75107184

Sample: 551099 Lab ID: 75107184001 Collected: 04/24/19 07:30 Received: 04/25/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>608SF GCS Pesticides and PCBs</b> Analytical Method: EPA 608 Preparation Method: EPA 608 SF									
Aldrin	ND	ug/L	0.010	0.0072	1	05/01/19 11:30	05/02/19 15:43	309-00-2	
alpha-BHC	ND	ug/L	0.052	0.0062	1	05/01/19 11:30	05/02/19 15:43	319-84-6	
beta-BHC	ND	ug/L	0.052	0.011	1	05/01/19 11:30	05/02/19 15:43	319-85-7	
gamma-BHC (Lindane)	ND	ug/L	0.052	0.0052	1	05/01/19 11:30	05/02/19 15:43	58-89-9	
delta-BHC	ND	ug/L	0.052	0.0041	1	05/01/19 11:30	05/02/19 15:43	319-86-8	
Chlordane (Technical)	ND	ug/L	0.21	0.042	1	05/01/19 11:30	05/02/19 15:43	57-74-9	
4,4'-DDT	ND	ug/L	0.021	0.0052	1	05/01/19 11:30	05/02/19 15:43	50-29-3	
4,4'-DDE	ND	ug/L	0.10	0.0041	1	05/01/19 11:30	05/02/19 15:43	72-55-9	
4,4'-DDD	ND	ug/L	0.10	0.0062	1	05/01/19 11:30	05/02/19 15:43	72-54-8	
Dieldrin	ND	ug/L	0.021	0.0041	1	05/01/19 11:30	05/02/19 15:43	60-57-1	
Endosulfan I	ND	ug/L	0.010	0.0041	1	05/01/19 11:30	05/02/19 15:43	959-98-8	
Endosulfan II	ND	ug/L	0.021	0.0041	1	05/01/19 11:30	05/02/19 15:43	33213-65-9	
Endosulfan sulfate	ND	ug/L	0.10	0.0041	1	05/01/19 11:30	05/02/19 15:43	1031-07-8	
Endrin	ND	ug/L	0.021	0.0041	1	05/01/19 11:30	05/02/19 15:43	72-20-8	
Endrin aldehyde	ND	ug/L	0.10	0.012	1	05/01/19 11:30	05/02/19 15:43	7421-93-4	
Heptachlor	ND	ug/L	0.010	0.0062	1	05/01/19 11:30	05/02/19 15:43	76-44-8	
Heptachlor epoxide	ND	ug/L	0.010	0.0041	1	05/01/19 11:30	05/02/19 15:43	1024-57-3	
Toxaphene	ND	ug/L	0.31	0.21	1	05/01/19 11:30	05/02/19 15:43	8001-35-2	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.21	0.070	1	05/01/19 11:30	05/02/19 15:43	53469-21-9	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.21	0.090	1	05/01/19 11:30	05/02/19 15:43	11097-69-1	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.21	0.099	1	05/01/19 11:30	05/02/19 15:43	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.21	0.10	1	05/01/19 11:30	05/02/19 15:43	11141-16-5	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.21	0.025	1	05/01/19 11:30	05/02/19 15:43	12672-29-6	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.21	0.073	1	05/01/19 11:30	05/02/19 15:43	11096-82-5	
PCB-1016 (Aroclor 1016)	ND	ug/L	0.21	0.093	1	05/01/19 11:30	05/02/19 15:43	12674-11-2	
PCB, Total	ND	ug/L	0.21	0.10	1	05/01/19 11:30	05/02/19 15:43	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	63	%	47-135		1	05/01/19 11:30	05/02/19 15:43	877-09-8	
Decachlorobiphenyl (S)	91	%	16-161		1	05/01/19 11:30	05/02/19 15:43	2051-24-3	
<b>615 Chlorinated Herbicides</b> Analytical Method: EPA 615 Preparation Method: EPA 615									
2,4-D	ND	ug/L	0.70	0.074	1	04/26/19 13:10	05/03/19 21:40	94-75-7	
2,4,5-TP (Silvex)	ND	ug/L	0.30	0.077	1	04/26/19 13:10	05/03/19 21:40	93-72-1	
<b>Surrogates</b>									
2,4-DCAA (S)	89	%	44-137		1	04/26/19 13:10	05/03/19 21:40	19719-28-9	
<b>604.1 HPLC Hexachlorophene</b> Analytical Method: EPA 604.1 Preparation Method: EPA 604.1									
Hexachlorophene	ND	ug/L	9.9	3.2	1	05/01/19 14:35	05/08/19 10:42	70-30-4	N3
<b>Surrogates</b>									
Nitrobenzene (S)	65	%	25-108		1	05/01/19 14:35	05/08/19 10:42		
<b>632 HPLC Carbamates</b> Analytical Method: EPA 632 Preparation Method: EPA 632									
Carbaryl	ND	ug/L	4.0	0.60	1	05/01/19 14:35	05/08/19 10:42	63-25-2	
Diuron	ND	ug/L	0.079	0.020	1	05/01/19 14:35	05/08/19 10:42	330-54-1	N2
<b>Surrogates</b>									
Nitrobenzene (S)	65	%	18-113		1	05/01/19 14:35	05/08/19 10:42		

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: 551099  
Pace Project No.: 75107184

Sample: 551099 Lab ID: 75107184001 Collected: 04/24/19 07:30 Received: 04/25/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV Analytical Method: EPA 625 Preparation Method: EPA 625									
Nonylphenol	ND	ug/L	333	3.0	1	05/01/19 07:13	05/03/19 18:21	25154-52-3	N2
2-Chlorophenol	ND	ug/L	10.0	0.85	1	05/01/19 07:13	05/03/19 18:21	95-57-8	
2,4-Dichlorophenol	ND	ug/L	10.0	0.85	1	05/01/19 07:13	05/03/19 18:21	120-83-2	
Cresols (Total)	ND	ug/L	10.0	1.6	1	05/01/19 07:13	05/03/19 18:21	1319-77-3	N2
2,4-Dimethylphenol	ND	ug/L	10.0	1.5	1	05/01/19 07:13	05/03/19 18:21	105-67-9	
4,6-Dinitro-2-methylphenol	ND	ug/L	10.0	1.5	1	05/01/19 07:13	05/03/19 18:21	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	1.2	1	05/01/19 07:13	05/03/19 18:21	51-28-5	
2-Nitrophenol	ND	ug/L	20.0	1.7	1	05/01/19 07:13	05/03/19 18:21	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	1.7	1	05/01/19 07:13	05/03/19 18:21	100-02-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	0.79	1	05/01/19 07:13	05/03/19 18:21		
4-Chloro-3-methylphenol	ND	ug/L	10.0	0.89	1	05/01/19 07:13	05/03/19 18:21	59-50-7	
Pentachlorophenol	ND	ug/L	5.2	2.2	1	05/01/19 07:13	05/03/19 18:21	87-86-5	
Phenol	ND	ug/L	10.0	1.0	1	05/01/19 07:13	05/03/19 18:21	108-95-2	
2,4,5-Trichlorophenol	ND	ug/L	50.0	2.0	1	05/01/19 07:13	05/03/19 18:21	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.9	1	05/01/19 07:13	05/03/19 18:21	88-06-2	
Acenaphthene	ND	ug/L	10.0	1.4	1	05/01/19 07:13	05/03/19 18:21	83-32-9	
Acenaphthylene	ND	ug/L	10.0	1.4	1	05/01/19 07:13	05/03/19 18:21	208-96-8	
Anthracene	ND	ug/L	10.0	1.1	1	05/01/19 07:13	05/03/19 18:21	120-12-7	
Benzidine	ND	ug/L	50.0	3.2	1	05/01/19 07:13	05/03/19 18:21	92-87-5	L2
Benzo(a)anthracene	ND	ug/L	5.0	0.96	1	05/01/19 07:13	05/03/19 18:21	56-55-3	
Benzo(a)pyrene	ND	ug/L	5.0	0.97	1	05/01/19 07:13	05/03/19 18:21	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	1.0	1	05/01/19 07:13	05/03/19 18:21	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	20.0	1.0	1	05/01/19 07:13	05/03/19 18:21	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	2.6	0.96	1	05/01/19 07:13	05/03/19 18:21	207-08-9	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	1.0	1	05/01/19 07:13	05/03/19 18:21	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.0	1	05/01/19 07:13	05/03/19 18:21	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	2.6	1.2	1	05/01/19 07:13	05/03/19 18:21	108-60-1	
bis(2-Ethylhexyl)phthalate	ND	ug/L	10.0	3.3	1	05/01/19 07:13	05/03/19 18:21	117-81-7	
4-Bromophenylphenyl ether	ND	ug/L	10.0	1.1	1	05/01/19 07:13	05/03/19 18:21	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	1.5	1	05/01/19 07:13	05/03/19 18:21	85-68-7	
2-Chloronaphthalene	ND	ug/L	10.0	1.5	1	05/01/19 07:13	05/03/19 18:21	91-58-7	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	1.4	1	05/01/19 07:13	05/03/19 18:21	7005-72-3	
Chrysene	ND	ug/L	5.0	1.0	1	05/01/19 07:13	05/03/19 18:21	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	5.0	1.1	1	05/01/19 07:13	05/03/19 18:21	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	5.0	2.7	1	05/01/19 07:13	05/03/19 18:21	91-94-1	
Diethylphthalate	ND	ug/L	10.0	0.94	1	05/01/19 07:13	05/03/19 18:21	84-66-2	
Dimethylphthalate	ND	ug/L	10.0	0.91	1	05/01/19 07:13	05/03/19 18:21	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	1.2	1	05/01/19 07:13	05/03/19 18:21	84-74-2	
2,4-Dinitrotoluene	ND	ug/L	10.0	2.7	1	05/01/19 07:13	05/03/19 18:21	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	1.9	1	05/01/19 07:13	05/03/19 18:21	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	1.8	1	05/01/19 07:13	05/03/19 18:21	117-84-0	
1,2-Diphenylhydrazine	ND	ug/L	20.0	1.3	1	05/01/19 07:13	05/03/19 18:21	122-66-7	
Fluoranthene	ND	ug/L	10.0	1.2	1	05/01/19 07:13	05/03/19 18:21	206-44-0	
Fluorene	ND	ug/L	10.0	1.3	1	05/01/19 07:13	05/03/19 18:21	86-73-7	
Hexachlorobenzene	ND	ug/L	5.0	1.0	1	05/01/19 07:13	05/03/19 18:21	118-74-1	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1.8	1	05/01/19 07:13	05/03/19 18:21	87-68-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: 551099  
Pace Project No.: 75107184

Sample: 551099 Lab ID: 75107184001 Collected: 04/24/19 07:30 Received: 04/25/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625								
Hexachlorocyclopentadiene	ND	ug/L	10.0	1.2	1	05/01/19 07:13	05/03/19 18:21	77-47-4	
Hexachloroethane	ND	ug/L	20.0	1.9	1	05/01/19 07:13	05/03/19 18:21	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	5.0	1.0	1	05/01/19 07:13	05/03/19 18:21	193-39-5	
Isophorone	ND	ug/L	10.0	1.9	1	05/01/19 07:13	05/03/19 18:21	78-59-1	
Naphthalene	ND	ug/L	10.0	2.1	1	05/01/19 07:13	05/03/19 18:21	91-20-3	
Nitrobenzene	ND	ug/L	10.0	1.3	1	05/01/19 07:13	05/03/19 18:21	98-95-3	
N-Nitrosodiethylamine	ND	ug/L	20.0	0.95	1	05/01/19 07:13	05/03/19 18:21	55-18-5	
N-Nitrosodimethylamine	ND	ug/L	50.0	0.67	1	05/01/19 07:13	05/03/19 18:21	62-75-9	
N-Nitroso-di-n-butylamine	ND	ug/L	20.0	0.76	1	05/01/19 07:13	05/03/19 18:21	924-16-3	
N-Nitroso-di-n-propylamine	ND	ug/L	20.0	1.1	1	05/01/19 07:13	05/03/19 18:21	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	20.0	0.85	1	05/01/19 07:13	05/03/19 18:21	86-30-6	
Phenanthrene	ND	ug/L	10.0	1.2	1	05/01/19 07:13	05/03/19 18:21	85-01-8	
Pentachlorobenzene	ND	ug/L	20.0	1.4	1	05/01/19 07:13	05/03/19 18:21	608-93-5	
Pyrene	ND	ug/L	10.0	1.2	1	05/01/19 07:13	05/03/19 18:21	129-00-0	
Pyridine	ND	ug/L	20.0	1.2	1	05/01/19 07:13	05/03/19 18:21	110-86-1	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	1.6	1	05/01/19 07:13	05/03/19 18:21	120-82-1	
1,2,4,5-Tetrachlorobenzene	ND	ug/L	20.0	1.4	1	05/01/19 07:13	05/03/19 18:21	95-94-3	
Surrogates									
Nitrobenzene-d5 (S)	49	%	15-106		1	05/01/19 07:13	05/03/19 18:21	4165-60-0	
2-Fluorobiphenyl (S)	50	%	26-102		1	05/01/19 07:13	05/03/19 18:21	321-60-8	
p-Terphenyl-d14 (S)	83	%	10-120		1	05/01/19 07:13	05/03/19 18:21	1718-51-0	
Phenol-d6 (S)	17	%	10-54		1	05/01/19 07:13	05/03/19 18:21	13127-88-3	
2-Fluorophenol (S)	24	%	10-66		1	05/01/19 07:13	05/03/19 18:21	367-12-4	
2,4,6-Tribromophenol (S)	63	%	29-132		1	05/01/19 07:13	05/03/19 18:21	118-79-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

QC Batch: 117064	Analysis Method: EPA 604.1
QC Batch Method: EPA 604.1	Analysis Description: 604.1 HPLC Hexachlorophene
Associated Lab Samples: 75107184001	

METHOD BLANK: 527341  
Associated Lab Samples: 75107184001

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Hexachlorophene	ug/L	ND	10.0	3.2	05/08/19 09:15	N3
Nitrobenzene (S)	%	71	25-108		05/08/19 09:15	

LABORATORY CONTROL SAMPLE: 527342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Hexachlorophene	ug/L	50	33.1	66	28-123	N3
Nitrobenzene (S)	%			68	25-108	

MATRIX SPIKE SAMPLE: 527343

Parameter	Units	75107184001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Hexachlorophene	ug/L	ND	52.6	40.8	77	22-130	N3
Nitrobenzene (S)	%				49	25-108	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

QC Batch: 117063	Analysis Method: EPA 608
QC Batch Method: EPA 608 SF	Analysis Description: 608 GCS Pest PCB
Associated Lab Samples: 75107184001	

METHOD BLANK: 527337 Matrix: Water  
Associated Lab Samples: 75107184001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
4,4'-DDD	ug/L	ND	0.10	0.0060	05/02/19 13:30	
4,4'-DDE	ug/L	ND	0.10	0.0040	05/02/19 13:30	
4,4'-DDT	ug/L	ND	0.020	0.0050	05/02/19 13:30	
Aldrin	ug/L	ND	0.010	0.0070	05/02/19 13:30	
alpha-BHC	ug/L	ND	0.050	0.0060	05/02/19 13:30	
beta-BHC	ug/L	ND	0.050	0.011	05/02/19 13:30	
Chlordane (Technical)	ug/L	ND	0.20	0.041	05/02/19 13:30	
delta-BHC	ug/L	ND	0.050	0.0040	05/02/19 13:30	
Dieldrin	ug/L	ND	0.020	0.0040	05/02/19 13:30	
Endosulfan I	ug/L	ND	0.010	0.0040	05/02/19 13:30	
Endosulfan II	ug/L	ND	0.020	0.0040	05/02/19 13:30	
Endosulfan sulfate	ug/L	ND	0.10	0.0040	05/02/19 13:30	
Endrin	ug/L	ND	0.020	0.0040	05/02/19 13:30	
Endrin aldehyde	ug/L	ND	0.10	0.012	05/02/19 13:30	
gamma-BHC (Lindane)	ug/L	ND	0.050	0.0050	05/02/19 13:30	
Heptachlor	ug/L	ND	0.010	0.0060	05/02/19 13:30	
Heptachlor epoxide	ug/L	ND	0.010	0.0040	05/02/19 13:30	
PCB-1016 (Aroclor 1016)	ug/L	ND	0.20	0.090	05/02/19 13:30	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.20	0.096	05/02/19 13:30	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.20	0.10	05/02/19 13:30	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.20	0.068	05/02/19 13:30	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.20	0.024	05/02/19 13:30	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.20	0.087	05/02/19 13:30	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.20	0.070	05/02/19 13:30	
Toxaphene	ug/L	ND	0.30	0.21	05/02/19 13:30	
Decachlorobiphenyl (S)	%	90	16-161		05/02/19 13:30	
Tetrachloro-m-xylene (S)	%	82	47-135		05/02/19 13:30	

LABORATORY CONTROL SAMPLE: 527338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/L	0.5	0.52	103	31-141	
4,4'-DDE	ug/L	0.5	0.46	92	30-145	
4,4'-DDT	ug/L	0.5	0.49	97	10-160	
Aldrin	ug/L	0.5	0.39	78	42-142	
alpha-BHC	ug/L	0.5	0.42	84	37-134	
beta-BHC	ug/L	0.5	0.43	86	17-147	
delta-BHC	ug/L	0.5	0.44	88	19-140	
Dieldrin	ug/L	0.5	0.47	93	36-146	
Endosulfan I	ug/L	0.5	0.44	87	45-153	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC

### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

LABORATORY CONTROL SAMPLE: 527338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endosulfan II	ug/L	0.5	0.46	92	40-140	
Endosulfan sulfate	ug/L	0.5	0.44	87	26-144	
Endrin	ug/L	0.5	0.45	91	30-147	
Endrin aldehyde	ug/L	0.5	0.42	84	40-140	
gamma-BHC (Lindane)	ug/L	0.5	0.45	90	32-127	
Heptachlor	ug/L	0.5	0.44	87	34-141	
Heptachlor epoxide	ug/L	0.5	0.46	92	25-142	
Decachlorobiphenyl (S)	%			76	16-161	
Tetrachloro-m-xylene (S)	%			70	47-135	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 527339 527340

Parameter	Units	20102615001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
4,4'-DDD	ug/L	ND	0.49	0.49	0.28	0.29	58	61	24-177	5	40
4,4'-DDE	ug/L	ND	0.49	0.49	0.23	0.23	48	47	22-161	3	40
4,4'-DDT	ug/L	ND	0.49	0.49	0.25	0.25	52	51	10-180	2	40
Aldrin	ug/L	ND	0.49	0.49	0.22	0.22	46	46	10-156	0	40
alpha-BHC	ug/L	ND	0.49	0.49	0.40	0.40	81	83	71-143	2	40
beta-BHC	ug/L	ND	0.49	0.49	0.42	0.42	86	87	72-149	0	40
delta-BHC	ug/L	ND	0.49	0.49	0.41	0.42	85	85	44-151	1	40
Dieldrin	ug/L	ND	0.49	0.49	0.32	0.33	66	67	33-166	2	40
Endosulfan I	ug/L	ND	0.49	0.49	0.31	0.32	64	65	27-167	2	40
Endosulfan II	ug/L	ND	0.49	0.49	0.36	0.38	75	77	37-173	3	40
Endosulfan sulfate	ug/L	ND	0.49	0.49	0.38	0.38	78	79	33-167	2	40
Endrin	ug/L	ND	0.49	0.49	0.32	0.33	66	68	39-173	2	40
Endrin aldehyde	ug/L	ND	0.49	0.49	0.36	0.35	73	72	14-180	1	40
gamma-BHC (Lindane)	ug/L	ND	0.49	0.49	0.42	0.43	87	88	69-139	2	40
Heptachlor	ug/L	ND	0.49	0.49	0.27	0.27	55	55	48-141	0	40
Heptachlor epoxide	ug/L	ND	0.49	0.49	0.32	0.32	65	66	28-164	1	40
Decachlorobiphenyl (S)	%						49	47	16-161		
Tetrachloro-m-xylene (S)	%						50	52	47-135		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

QC Batch: 116800 Analysis Method: EPA 615  
QC Batch Method: EPA 615 Analysis Description: 615 GCS Herbicides  
Associated Lab Samples: 75107184001

METHOD BLANK: 526219 Matrix: Water  
Associated Lab Samples: 75107184001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
2,4,5-TP (Silvex)	ug/L	ND	0.30	0.074	05/03/19 19:11	
2,4-D	ug/L	ND	0.70	0.071	05/03/19 19:11	
2,4-DCAA (S)	%	87	44-137		05/03/19 19:11	

LABORATORY CONTROL SAMPLE: 526220

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	ug/L	3	2.5	83	57-125	
2,4-D	ug/L	3	2.5	85	49-133	
2,4-DCAA (S)	%			88	44-137	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 526221 526222

Parameter	Units	75107009002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	ND	3	3	2.2	2.2	75	73	44-134	3	40	
2,4-D	ug/L	ND	3	3	2.1	2.1	70	71	49-145	1	40	
2,4-DCAA (S)	%						81	83	44-137			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

QC Batch: 117031 Analysis Method: EPA 625  
QC Batch Method: EPA 625 Analysis Description: 625 MSS  
Associated Lab Samples: 75107184001

METHOD BLANK: 527192 Matrix: Water  
Associated Lab Samples: 75107184001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	ND	20.0	1.3	05/03/19 09:35	
1,2,4-Trichlorobenzene	ug/L	ND	10.0	1.6	05/03/19 09:35	
1,2-Diphenylhydrazine	ug/L	ND	20.0	1.2	05/03/19 09:35	
2,4,5-Trichlorophenol	ug/L	ND	50.0	1.9	05/03/19 09:35	
2,4,6-Trichlorophenol	ug/L	ND	10.0	1.8	05/03/19 09:35	
2,4-Dichlorophenol	ug/L	ND	10.0	0.82	05/03/19 09:35	
2,4-Dimethylphenol	ug/L	ND	10.0	1.4	05/03/19 09:35	
2,4-Dinitrophenol	ug/L	ND	50.0	1.1	05/03/19 09:35	
2,4-Dinitrotoluene	ug/L	ND	10.0	2.7	05/03/19 09:35	
2,6-Dinitrotoluene	ug/L	ND	10.0	1.8	05/03/19 09:35	
2-Chloronaphthalene	ug/L	ND	10.0	1.4	05/03/19 09:35	
2-Chlorophenol	ug/L	ND	10.0	0.82	05/03/19 09:35	
2-Nitrophenol	ug/L	ND	20.0	1.7	05/03/19 09:35	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	10.0	0.77	05/03/19 09:35	
3,3'-Dichlorobenzidine	ug/L	ND	5.0	2.7	05/03/19 09:35	
4,6-Dinitro-2-methylphenol	ug/L	ND	10.0	1.5	05/03/19 09:35	
4-Bromophenylphenyl ether	ug/L	ND	10.0	1.0	05/03/19 09:35	
4-Chloro-3-methylphenol	ug/L	ND	10.0	0.87	05/03/19 09:35	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	1.4	05/03/19 09:35	
4-Nitrophenol	ug/L	ND	50.0	1.6	05/03/19 09:35	
Acenaphthene	ug/L	ND	10.0	1.3	05/03/19 09:35	
Acenaphthylene	ug/L	ND	10.0	1.3	05/03/19 09:35	
Anthracene	ug/L	ND	10.0	1.1	05/03/19 09:35	
Benztidine	ug/L	ND	50.0	3.1	05/03/19 09:35	
Benzo(a)anthracene	ug/L	ND	5.0	0.93	05/03/19 09:35	
Benzo(a)pyrene	ug/L	ND	5.0	0.94	05/03/19 09:35	
Benzo(b)fluoranthene	ug/L	ND	10.0	1.0	05/03/19 09:35	
Benzo(g,h,i)perylene	ug/L	ND	20.0	1.0	05/03/19 09:35	
Benzo(k)fluoranthene	ug/L	ND	2.5	0.93	05/03/19 09:35	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	0.99	05/03/19 09:35	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	1.0	05/03/19 09:35	
bis(2-Chloroisopropyl) ether	ug/L	ND	2.5	1.2	05/03/19 09:35	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	3.2	05/03/19 09:35	
Butylbenzylphthalate	ug/L	ND	10.0	1.4	05/03/19 09:35	
Chrysene	ug/L	ND	5.0	1.0	05/03/19 09:35	
Cresols (Total)	ug/L	ND	10.0	1.5	05/03/19 09:35	N2
Di-n-butylphthalate	ug/L	ND	10.0	1.2	05/03/19 09:35	
Di-n-octylphthalate	ug/L	ND	10.0	1.7	05/03/19 09:35	
Dibenz(a,h)anthracene	ug/L	ND	5.0	1.1	05/03/19 09:35	
Diethylphthalate	ug/L	ND	10.0	0.92	05/03/19 09:35	
Dimethylphthalate	ug/L	ND	10.0	0.88	05/03/19 09:35	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

METHOD BLANK: 527192  
Associated Lab Samples: 75107184001

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoranthene	ug/L	ND	10.0	1.1	05/03/19 09:35	
Fluorene	ug/L	ND	10.0	1.3	05/03/19 09:35	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	1.8	05/03/19 09:35	
Hexachlorobenzene	ug/L	ND	5.0	0.97	05/03/19 09:35	
Hexachlorocyclopentadiene	ug/L	ND	10.0	1.2	05/03/19 09:35	
Hexachloroethane	ug/L	ND	20.0	1.9	05/03/19 09:35	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	0.98	05/03/19 09:35	
Isophorone	ug/L	ND	10.0	1.8	05/03/19 09:35	
N-Nitroso-di-n-butylamine	ug/L	ND	20.0	0.74	05/03/19 09:35	
N-Nitroso-di-n-propylamine	ug/L	ND	20.0	1.1	05/03/19 09:35	
N-Nitrosodiethylamine	ug/L	ND	20.0	0.93	05/03/19 09:35	
N-Nitrosodimethylamine	ug/L	ND	50.0	0.65	05/03/19 09:35	
N-Nitrosodiphenylamine	ug/L	ND	20.0	0.83	05/03/19 09:35	
Naphthalene	ug/L	ND	10.0	2.0	05/03/19 09:35	
Nitrobenzene	ug/L	ND	10.0	1.2	05/03/19 09:35	
Nonylphenol	ug/L	ND	333	2.9	05/03/19 09:35	N2
Pentachlorobenzene	ug/L	ND	20.0	1.3	05/03/19 09:35	
Pentachlorophenol	ug/L	ND	5.0	2.1	05/03/19 09:35	
Phenanthrene	ug/L	ND	10.0	1.1	05/03/19 09:35	
Phenol	ug/L	ND	10.0	0.97	05/03/19 09:35	
Pyrene	ug/L	ND	10.0	1.2	05/03/19 09:35	
Pyridine	ug/L	ND	20.0	1.2	05/03/19 09:35	
2,4,6-Tribromophenol (S)	%	99	29-132		05/03/19 09:35	
2-Fluorobiphenyl (S)	%	93	26-102		05/03/19 09:35	
2-Fluorophenol (S)	%	59	10-66		05/03/19 09:35	
Nitrobenzene-d5 (S)	%	95	15-106		05/03/19 09:35	
p-Terphenyl-d14 (S)	%	101	10-120		05/03/19 09:35	
Phenol-d6 (S)	%	44	10-54		05/03/19 09:35	

LABORATORY CONTROL SAMPLE: 527193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	50	39.2	78	35-108	
1,2,4-Trichlorobenzene	ug/L	50	38.0	76	44-142	
1,2-Diphenylhydrazine	ug/L	50	43.7	87	62-114	
2,4,5-Trichlorophenol	ug/L	50	45.4J	91	60-118	
2,4,6-Trichlorophenol	ug/L	50	43.5	87	37-144	
2,4-Dichlorophenol	ug/L	50	43.0	86	39-135	
2,4-Dimethylphenol	ug/L	50	28.2	56	32-119	
2,4-Dinitrophenol	ug/L	50	38.3J	77	1-191	
2,4-Dinitrotoluene	ug/L	50	49.2	98	39-139	
2,6-Dinitrotoluene	ug/L	50	48.5	97	50-158	
2-Chloronaphthalene	ug/L	50	38.3	77	60-118	
2-Chlorophenol	ug/L	50	38.3	77	23-134	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

LABORATORY CONTROL SAMPLE: 527193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Nitrophenol	ug/L	50	45.7	91	29-182	
3&4-Methylphenol(m&p Cresol)	ug/L	50	34.5	69	33-110	
3,3'-Dichlorobenzidine	ug/L	100	95.1	95	1-262	
4,6-Dinitro-2-methylphenol	ug/L	50	44.5	89	1-181	
4-Bromophenylphenyl ether	ug/L	50	41.6	83	53-127	
4-Chloro-3-methylphenol	ug/L	50	48.6	97	22-147	
4-Chlorophenylphenyl ether	ug/L	50	43.4	87	25-158	
4-Nitrophenol	ug/L	50	37.4J	75	1-132	
Acenaphthene	ug/L	50	41.5	83	47-145	
Acenaphthylene	ug/L	50	42.2	84	33-145	
Anthracene	ug/L	50	43.2	86	27-133	
Benzidine	ug/L	100	8.9J	9	10-140 L2	
Benzo(a)anthracene	ug/L	50	41.4	83	33-143	
Benzo(a)pyrene	ug/L	50	44.6	89	17-163	
Benzo(b)fluoranthene	ug/L	50	45.9	92	24-159	
Benzo(g,h,i)perylene	ug/L	50	43.7	87	1-219	
Benzo(k)fluoranthene	ug/L	50	42.5	85	11-162	
bis(2-Chloroethoxy)methane	ug/L	50	41.2	82	33-184	
bis(2-Chloroethyl) ether	ug/L	50	38.1	76	12-158	
bis(2-Chloroisopropyl) ether	ug/L	50	39.3	79	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	50	46.9	94	8-158	
Butylbenzylphthalate	ug/L	50	45.9	92	1-152	
Chrysene	ug/L	50	43.1	86	17-168	
Cresols (Total)	ug/L	100	70.1	70	36-110 N2	
Di-n-butylphthalate	ug/L	50	50.0	100	1-118	
Di-n-octylphthalate	ug/L	50	48.7	97	4-146	
Dibenz(a,h)anthracene	ug/L	50	45.1	90	1-227	
Diethylphthalate	ug/L	50	47.8	96	1-114	
Dimethylphthalate	ug/L	50	45.5	91	1-112	
Fluoranthene	ug/L	50	49.4	99	26-137	
Fluorene	ug/L	50	43.8	88	59-121	
Hexachloro-1,3-butadiene	ug/L	50	37.6	75	24-116	
Hexachlorobenzene	ug/L	50	42.3	85	1-152	
Hexachlorocyclopentadiene	ug/L	50	39.3	79	12-121	
Hexachloroethane	ug/L	50	35.3	71	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	50	44.7	89	1-171	
Isophorone	ug/L	50	44.2	88	21-196	
N-Nitroso-di-n-butylamine	ug/L	50	41.5	83	49-117	
N-Nitroso-di-n-propylamine	ug/L	50	43.3	87	1-230	
N-Nitrosodiethylamine	ug/L	50	39.3	79	40-140	
N-Nitrosodimethylamine	ug/L	50	26J	52	26-77	
N-Nitrosodiphenylamine	ug/L	50	44.5	89	67-115	
Naphthalene	ug/L	50	39.1	78	21-133	
Nitrobenzene	ug/L	50	43.0	86	35-180	
Nonylphenol	ug/L	50	53.4J	107	57-136 N2	
Pentachlorobenzene	ug/L	50	43.8	88	40-140	
Pentachlorophenol	ug/L	50	45.9	92	14-176	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

### LABORATORY CONTROL SAMPLE: 527193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	50	42.2	84	54-120	
Phenol	ug/L	50	18.8	38	5-112	
Pyrene	ug/L	50	49.7	99	52-115	
Pyridine	ug/L	50	10.6J	21	12-110	
2,4,6-Tribromophenol (S)	%			108	29-132	
2-Fluorobiphenyl (S)	%			83	26-102	
2-Fluorophenol (S)	%			52	10-66	
Nitrobenzene-d5 (S)	%			84	15-106	
p-Terphenyl-d14 (S)	%			89	10-120	
Phenol-d6 (S)	%			42	10-54	

### MATRIX SPIKE SAMPLE: 527194

Parameter	Units	75107267001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	ND	50	31.5	63	37-105	
1,2,4-Trichlorobenzene	ug/L	ND	50	33.0	66	44-142	
1,2-Diphenylhydrazine	ug/L	ND	50	39.7	79	43-124	
2,4,5-Trichlorophenol	ug/L	ND	50	44.9J	90	50-121	
2,4,6-Trichlorophenol	ug/L	ND	50	42.7	85	37-144	
2,4-Dichlorophenol	ug/L	ND	50	40.1	80	39-135	
2,4-Dimethylphenol	ug/L	ND	50	55.3	111	32-119	
2,4-Dinitrophenol	ug/L	ND	50	27.6J	55	1-191	
2,4-Dinitrotoluene	ug/L	ND	50	37.7	75	39-139	
2,6-Dinitrotoluene	ug/L	ND	50	42.4	85	50-158	
2-Chloronaphthalene	ug/L	ND	50	37.4	75	60-118	
2-Chlorophenol	ug/L	ND	50	34.8	70	23-134	
2-Nitrophenol	ug/L	ND	50	39.4	79	29-182	
3&4-Methylphenol(m&p Cresol)	ug/L	42.5	50	86.2	87	10-105	
3,3'-Dichlorobenzidine	ug/L	ND	100	18.7	19	1-262	
4,6-Dinitro-2-methylphenol	ug/L	ND	50	13.2	26	1-181	
4-Bromophenylphenyl ether	ug/L	ND	50	40.8	82	53-127	
4-Chloro-3-methylphenol	ug/L	ND	50	34.1	68	22-147	
4-Chlorophenylphenyl ether	ug/L	ND	50	40.6	81	25-158	
4-Nitrophenol	ug/L	ND	50	37.3J	75	1-132	
Acenaphthene	ug/L	ND	50	40.5	81	47-145	
Acenaphthylene	ug/L	ND	50	35.2	70	33-145	
Anthracene	ug/L	ND	50	40.7	81	27-133	
Benazidine	ug/L	ND	100	ND	2	10-74 MO	
Benzo(a)anthracene	ug/L	ND	50	37.4	75	33-143	
Benzo(a)pyrene	ug/L	ND	50	41.8	84	17-163	
Benzo(b)fluoranthene	ug/L	ND	50	41.0	82	24-159	
Benzo(g,h,i)perylene	ug/L	ND	50	48.0	96	1-219	
Benzo(k)fluoranthene	ug/L	ND	50	42.8	86	11-162	
bis(2-Chloroethoxy)methane	ug/L	ND	50	39.9	80	33-184	
bis(2-Chloroethyl) ether	ug/L	ND	50	33.6	67	12-158	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

MATRIX SPIKE SAMPLE:		527194					
Parameter	Units	75107267001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
bis(2-Chloroisopropyl) ether	ug/L	ND	50	39.9	80	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	ND	50	45.6	91	8-158	
Butylbenzylphthalate	ug/L	ND	50	43.6	87	1-152	
Chrysene	ug/L	ND	50	41.7	83	17-168	
Cresols (Total)	ug/L	54.1	100	129	75	10-118	N2
Di-n-butylphthalate	ug/L	ND	50	43.0	86	1-118	
Di-n-octylphthalate	ug/L	ND	50	41.1	82	4-146	
Dibenz(a,h)anthracene	ug/L	ND	50	48.8	98	1-227	
Diethylphthalate	ug/L	ND	50	44.3	89	1-114	
Dimethylphthalate	ug/L	ND	50	42.4	85	1-112	
Fluoranthene	ug/L	ND	50	38.0	76	26-137	
Fluorene	ug/L	ND	50	39.2	78	59-121	
Hexachloro-1,3-butadiene	ug/L	ND	50	36.2	72	24-116	
Hexachlorobenzene	ug/L	ND	50	42.6	85	1-152	
Hexachlorocyclopentadiene	ug/L	ND	50	11.7	23	10-123	
Hexachloroethane	ug/L	ND	50	31.6	63	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	ND	50	46.9	94	1-171	
Isophorone	ug/L	ND	50	44.8	90	21-196	
N-Nitroso-di-n-butylamine	ug/L	ND	50	52.2	104	41-119	
N-Nitroso-di-n-propylamine	ug/L	ND	50	43.2	86	1-230	
N-Nitrosodiethylamine	ug/L	ND	50	44.4	89	25-126	
N-Nitrosodimethylamine	ug/L	ND	50	20J	40	14-77	
N-Nitrosodiphenylamine	ug/L	ND	50	43.0	86	35-131	
Naphthalene	ug/L	ND	50	37.5	75	21-133	
Nitrobenzene	ug/L	ND	50	74.9	150	35-180	
Nonylphenol	ug/L	ND	50	48.4J	97	37-142	N2
Pentachlorobenzene	ug/L	ND	50	41.5	83	48-111	
Pentachlorophenol	ug/L	ND	50	53.3	107	14-176	
Phenanthrene	ug/L	ND	50	40.0	80	54-120	
Phenol	ug/L	ND	50	25.9	43	5-112	
Pyrene	ug/L	ND	50	37.6	75	52-115	
Pyridine	ug/L	ND	50	9.9J	20	10-69	
2,4,6-Tribromophenol (S)	%				112	29-132	
2-Fluorobiphenyl (S)	%				75	26-102	
2-Fluorophenol (S)	%				42	10-66	
Nitrobenzene-d5 (S)	%				80	15-106	
p-Terphenyl-d14 (S)	%				103	10-120	
Phenol-d6 (S)	%				37	10-54	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551099  
Pace Project No.: 75107184

QC Batch: 117065 Analysis Method: EPA 632  
QC Batch Method: EPA 632 Analysis Description: 632 HPLC Carbamates  
Associated Lab Samples: 75107184001

METHOD BLANK: 527344 Matrix: Water  
Associated Lab Samples: 75107184001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbaryl	ug/L	ND	4.0	0.61	05/08/19 09:15	
Diuron	ug/L	ND	0.080	0.020	05/08/19 09:15	N2
Nitrobenzene (S)	%	71	18-113		05/08/19 09:15	

LABORATORY CONTROL SAMPLE: 527345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbaryl	ug/L	10	8.3	83	59-119	
Diuron	ug/L	5	3.9	78	61-114	N2
Nitrobenzene (S)	%			68	18-113	

MATRIX SPIKE SAMPLE: 527346

Parameter	Units	75107184001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Carbaryl	ug/L	ND	10.5	9.1	87	45-139	
Diuron	ug/L	ND	5.3	4.6	86	54-127	N2
Nitrobenzene (S)	%				49	18-113	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: 551099  
Pace Project No.: 75107184

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-D Pace Analytical Services - Dallas

### ANALYTE QUALIFIERS

L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
N3	Accreditation is not offered by the relevant laboratory accrediting body for this parameter.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.





Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123


### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 551099  
Pace Project No.: 75107184

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
75107184001	551099	EPA 608 SF	117063	EPA 608	117125
75107184001	551099	EPA 615	116800	EPA 615	117256
75107184001	551099	EPA 604.1	117064	EPA 604.1	117538
75107184001	551099	EPA 632	117065	EPA 632	117536
75107184001	551099	EPA 625	117031	EPA 625	117208

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

	Document Name: Sample Condition Upon Receipt	Document Revised: 03-14-19 Page 1 of 1
	Document No.: F-DAL-C-001-rev.9	Issuing Authority: Pace Dallas Quality Office

### Sample Condition Upon Receipt

☒ Dallas ☐ Ft Worth

**WO#: 75107184**

Client Name: PCS Project Work order:

Courier: FedEx ☐ UPS ☐ USPS ☐ Client ☐ LSO ☒ PACE ☐ Other: \_\_\_\_\_



Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box: Yes ☐ No ☒ Packing Material: Bubble Wrap/Bags ☒ Foam ☐ None ☐ Other ☐

Received on Ice: Yes ☐ No ☒ Type of Ice: Wet ☐ Blue ☐

Thermometer Used: IP-11 Cooler Temp °C: 2.6 (Recorded) 10.0 (Correction Factor) 2.6 (Actual)

Temperature should be above freezing to 6°C

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area: State Sampled: <u>TX</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

# POLLUTION CONTROL SERVICES

1532 Universal City Blvd, Suite 100  
Universal City, TX 78148-3318  
Facsimile 210.658.7903  
210.340.0343

## CHAIN OF CUSTODY & SUBCONTRACT TRACKING SHEET

TO: Pace Analytical Services, Inc.

400 W Bethany Rd, Ste 190

Allen, TX 75013

Relinquished by: Greg Felux

Date/Time: 4/24/2019 @ 1700

Received by: *gerrit Wagner / Pace*

Date/Time: *4/25/19 10:30*

PCS#	Date	Time	Analysis Requested	Pres	T. A. T.
551099	04/24/2019	0730	604.1 Hexachlorophene	ICE	std
551099	-----	---	Semi Volatiles 625		---
551099	-----	---	Herbicides 615		---
551099	-----	---	Pesticide 1657		---
551099	-----	---	Pesticides 617		---
551099	-----	---	Pesticides 632		---
551099	-----	---	608 PCBs		---

**WO#: 75107184**

Comments/Special Instructions: \_\_\_\_\_

PM: MLM

Due Date: 05/09/19

CLIENT: PCS

Unless otherwise requested, send results and invoice to:

Chuck Wallgren  
Pollution Control Services  
1532 Universal City Blvd, Suite 100  
Universal City, TX 78148-3318

Authorized by: \_\_\_\_\_

Date: \_\_\_\_\_

*4/24/19*



Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Report Page 1 of 7

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

Employee Owned Integrity Caring Continual Improvement

## Results

Printed: 05/03/2019 11:59

Page 1 of 2

### Report To

75107184

Account  
**PAMM-N**

Project  
**871840**

Pace Analytical - Dallas  
Melissa McCullough  
400 West Bethany Drive  
Suite 190  
Allen, TX 75013

## Results

1778844 75107184001

Received: 04/26/2019

Non-Potable Water

Collected by: Client Pace Analytical - Da  
Taken: 04/24/2019 07:30:00

PO: DA-SUB2103

### EPA 1657

Prepared: 835581 04/29/2019 09:20:04 Analyzed 836081 05/01/2019 01:52:00 EMT

Parameter	Results	Units	RL	Flag	CAS	Bottle
2 Azinphos-methyl (Guthion)	<0.0518	ug/L	0.0518		86-50-0	04
2 Chlorpyrifos	<0.0414	ug/L	0.0414		2921-88-2	04
2 Demeton	<0.0518	ug/L	0.0518		8065-48-3	04
2 Diazinon	<0.050	ug/L	0.050		333-41-5	04
2 Malathion	<0.0518	ug/L	0.0518		121-75-5	04
2 Parathion, ethyl	<0.0518	ug/L	0.0518		56-38-2	04
2 Parathion, methyl	<0.0414	ug/L	0.0414		298-00-0	04

### EPA 617

Prepared: 835578 04/29/2019 09:14:34 Analyzed 836218 05/01/2019 20:25:00 EMT

Parameter	Results	Units	RL	Flag	CAS	Bottle
2 Kelthane (Dicofol)	<0.0414	ug/kg	0.0414		115-32-2	03
2 Methoxychlor	<0.0104	ug/kg	0.0104	D	72-43-5	03
2 Mirex	<0.0104	ug/kg	0.0104		2385-85-5	03

## Sample Preparation

1778844 75107184001

Received: 04/26/2019

DA-SUB2103

### EPA 1657

Prepared: 835581 04/29/2019 09:20:04 Analyzed 836081 05/01/2019 01:52:00 EMT

Organophos. Pesticides

Entered

04

### EPA 614/608/617/1657

Prepared: 835578 04/29/2019 09:14:34 Analyzed 835578 04/29/2019 09:14:34 SJN

Liquid-Liquid Extr. W/Hex Ex

1/966

ml

02

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

North Texas Region: 11105 Shady Trl Ste. 123 Dallas TX 75229-7633



NELAP-accredited #T104704201-19-15

Page 22 of 28



Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Report Page 2 of 7

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

Employee Owned Integrity Caring Continual Improvement

## Results

Printed: 05/03/2019 11:59

Page 2 of 2

1778844 75107184001

Received: 04/26/2019

DA-SUB2103

EPA 614/608/617/1657

Prepared: 835581 04/29/2019 09:20:04 Analyzed 835581 04/29/2019 09:20:04 SJN

Solvent Extraction

1/966

ml

02

EPA 617

Prepared: 835578 04/29/2019 09:14:34 Analyzed 836218 05/01/2019 20:25:00 EMT

z Dicofo/Methoxychlor/Mirex

Entered

03

### Qualifiers:

D - Duplicate RPD was higher than expected

We report results on an As Received or wet basis unless marked Dry Weight. Unless otherwise noted, testing was performed at Ana-labs corporate laboratory that holds the following Federal and State certificates: EPA Lab Number TX00063, US Department of Agriculture Soil Import Permit P330-17-00117, Texas Commission on Environmental Quality Commercial Drinking Water Lab Approval (Lab ID: TX219), Texas Commission on Environmental Quality NELAP T104704201-19-15, Louisiana Department of Environmental Quality Laboratory Certification (NELAP, LELAP) #02008, Louisiana Department of Health and Hospitals Drinking Water (NELAP) Certificate No LA026, Oklahoma Department of Environmental Quality TNI Laboratory Accreditation Program Certificate No. 2018-126, Arkansas Department of Environmental Quality Certification #18-068-0. The Accredited column designates accreditation by N -- NELAC, or z -- not covered under NELAC scope of accreditation.

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of Ana-Lab Corp. Unless otherwise specified, these test results meet the requirements of NELAC.

RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column.

MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

*Bill Peery*

Bill Peery, MS, VP Technical Services



Corporate Shipping: 2680 Dudley Rd. Kilgore, TX 75662

North Texas Region: 11105 Shady Trl Ste. 123 Dallas TX 75229-7633



NELAP-accredited #T104704201-19-15

Page 23 of 28



Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Report Page 3 of 7

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

LELAP-accredited #02008

Employee Owned

Integrity

Caring

Continual Improvement

## Quality Control

Printed 05/03/2019

Page 1 of 2

Report To

Pace Analytical - Dallas  
Melissa McCullough  
400 West Bethany Drive  
Suite 190  
Allen, TX 75013

Account  
PAMM-N

Project  
871840

Analytical Set 836081

EPA 1657

## Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Azinphos-methyl (Guthion)	835581	ND	0.0461	0.050	ug/L	119885116
Chlorpyrifos	835581	ND	0.0394	0.040	ug/L	119885116
Demeton	835581	ND	0.0377	0.050	ug/L	119885116
Diazinon	835581	ND	0.0432	0.050	ug/L	119885116
Malathion	835581	ND	0.0466	0.050	ug/L	119885116
Parathion, ethyl	835581	ND	0.0292	0.050	ug/L	119885116
Parathion, methyl	835581	ND	0.0395	0.040	ug/L	119885116

## CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Azinphos-methyl (Guthion)	900	1000	ug/L	90.0	80.0 - 120	119885115
Chlorpyrifos	940	1000	ug/L	94.0	80.0 - 120	119885115
Demeton	897	1000	ug/L	89.7	80.0 - 120	119885115
Diazinon	917	1000	ug/L	91.7	80.0 - 120	119885115
Malathion	894	1000	ug/L	89.4	80.0 - 120	119885115
Parathion, ethyl	837	1000	ug/L	83.7	80.0 - 120	119885115
Parathion, methyl	1080	1000	ug/L	108	80.0 - 120	119885115

## LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Azinphos-methyl (Guthion)	835581	0.200	0.152	1.00	0.100 - 166	20.0	15.2	ug/L	27.3	50.0
Chlorpyrifos	835581	0.250	0.206	1.00	0.100 - 109	25.0	20.6	ug/L	19.3	50.0
Demeton	835581	0.168	0.141	1.00	0.100 - 101	16.8	14.1	ug/L	17.5	50.0
Diazinon	835581	0.250	0.225	1.00	0.100 - 106	25.0	22.5	ug/L	10.5	50.0
Malathion	835581	0.227	0.212	1.00	0.100 - 113	22.7	21.2	ug/L	6.83	50.0
Parathion, ethyl	835581	0.234	0.218	1.00	0.100 - 111	23.4	21.8	ug/L	7.08	50.0
Parathion, methyl	835581	0.228	0.210	1.00	0.100 - 109	22.8	21.0	ug/L	8.22	50.0

## Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Tributylphosphate		CCV	927	1000	ug/L	92.7	0.100 - 118	119885115
Triphenylphosphate		CCV	860	1000	ug/L	86.0	0.100 - 147	119885115
Tributylphosphate	835581	Blank	635	1000	ug/L	63.5	0.100 - 118	119885116
	835581	LCS	224	1000	ug/L	22.4	0.100 - 118	119885117
	835581	LCS Dup	190	1000	ug/L	19.0	0.100 - 118	119885118
Triphenylphosphate	835581	Blank	371	1000	ug/L	37.1	0.100 - 147	119885116
	835581	LCS	190	1000	ug/L	19.0	0.100 - 147	119885117
	835581	LCS Dup	180	1000	ug/L	18.0	0.100 - 147	119885118
Tributylphosphate	1778844	UNKNOWN	150	1.04	ug/L	14.4	0.100 - 118	119885119
Triphenylphosphate	1778844	UNKNOWN	123	1.04	ug/L	11.8	0.100 - 147	119885119

Analytical Set 836218

EPA 617

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

North Texas Region: 11105 Shady Trl Ste. 123 Dallas TX 75229-7643



NELAP-accredited #T104704201-19-15

Page 24 of 28



## Quality Control

Printed 05/03/2019

Page 2 of 2

## Blank

<u>Parameter</u>	<u>PrepSet</u>	<u>Reading</u>	<u>MDL</u>	<u>MQL</u>	<u>Units</u>	<u>File</u>
Kelthane (Dicofol)	835578	ND	0.0352	0.040	ug/kg	119887732
Methoxychlor	835578	ND	0.00897	0.010	ug/kg	119887732
Mirex	835578	ND	0.00905	0.010	ug/kg	119887732

## CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Kelthane (Dicofol)	207	200	ug/kg	103	70.0 - 130	119887730
	202	200	ug/kg	101	70.0 - 130	119887741
Methoxychlor	113	100	ug/kg	113	70.0 - 130	119887730
	113	100	ug/kg	113	70.0 - 130	119887741
Mirex	103	100	ug/kg	103	70.0 - 130	119887730
	99.3	100	ug/kg	99.3	70.0 - 130	119887741

## LCS Dup

<u>Parameter</u>	<u>PrepSet</u>	<u>LCS</u>	<u>LCSD</u>	<u>Known</u>	<u>Limits%</u>	<u>LCS%</u>	<u>LCSD%</u>	<u>Units</u>	<u>RPD</u>	<u>Limit%</u>
Kelthane (Dicofol)	835578	0.676	0.869	2.00	0.100 - 130	33.8	43.4	ug/kg	24.9	30.0
Methoxychlor	835578	0.625	0.869	1.00	33.6 - 137	62.5	86.9	ug/kg	32.7 *	30.0
Mirex	835578	0.641	0.841	1.00	37.6 - 119	64.1	84.1	ug/kg	27.0	30.0

## Surrogate

<u>Parameter</u>	<u>Sample</u>	<u>Type</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Decachlorobiphenyl		CCV	99.6	100	ug/kg	99.6	10.0 - 150	119887730
		CCV	95.1	100	ug/kg	95.1	10.0 - 150	119887741
Tetrachloro-m-Xylene (Surr)		CCV	102	100	ug/kg	102	10.0 - 150	119887730
		CCV	102	100	ug/kg	102	10.0 - 150	119887741
Decachlorobiphenyl	835578	Blank	72.5	100	ug/kg	72.5	10.0 - 150	119887732
	835578	LCS	73.8	100	ug/kg	73.8	10.0 - 150	119887733
	835578	LCS Dup	84.7	100	ug/kg	84.7	10.0 - 150	119887734
Tetrachloro-m-Xylene (Surr)	835578	Blank	35.8	100	ug/kg	35.8	10.0 - 150	119887732
	835578	LCS	46.5	100	ug/kg	46.5	10.0 - 150	119887733
	835578	LCS Dup	45.0	100	ug/kg	45.0	10.0 - 150	119887734
Decachlorobiphenyl	1778844	UNKNOWN	530	1.04	ug/kg	51.0	10.0 - 150	119887740
Tetrachloro-m-Xylene (Surr)	1778844	UNKNOWN	432	1.04	ug/kg	41.5	10.0 - 150	119887740

\* Out RPD is Relative Percent Difference:  $\text{abs}(r1-r2) / \text{mean}(r1,r2) * 100\%$ Recover% is Recovery Percent:  $\text{result} / \text{known} * 100\%$ 

Blank - Method Blank; CCV - Continuing Calibration Verification



1 of 3

871840 CoC Print Group 001 of 001

# Chain of Custody

Workorder: 75107184

Workorder Name: 551099

Results Requested By: 5/9/2019

Report / Invoice To  
Melissa McCullough  
Pace Analytical Dallas  
400 West Balmory Drive  
Suite 190  
Allen, TX 75013  
Phone (972)727-1123  
Email: melissa.mccullough@pacealabs.com

Amakab

P.O. DA-5492103

State of Sample Origin: TX TPDES

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Comments
					Upstream	617 & 1657	
1	551099	4/24/2019 07:30	75107184001	Water		X	
2	777 8844						
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time	Custody Seal (Y or N)	Received on Ice (Y or N)	Samples Intact Y or N
1	Melissa McCullough	4.15.19 17:00	Katie	4/25.19 17:00			
2	Katie	4/26/19 09:05	Katie	4/26/19 09:05			
3			Kathy Tarver	ANA-LAB			

See Attached for  
Tracking # and Temp

Thermal Contact      Intact  
☐ 6005      ☐ 6003  
☒ 6004      ☒ 6003  
Date: 4/24/19      Time: 10:15 PM  
CMI

Thursday, April 25, 2019 2:04:02 PM

FMF-ALL-C-002rev.00 24March2008

Page 1 of 1

Pace Analytical  
www.pacealabs.com



2 of 3

871840 CoC Print Group 001 of 001

**Profile List**

PASI Dallas Laboratory

Client	PCS	Profile N 6252		Line 12				
Line								
Item	Acode	Cmp List	Cmp	Analyte	CAS No.	PQL	MDL Units	Sig Figs
2	1657 W	1657 W	azin	Azinphos, methyl (Guthion)	88-60-0	0.1	0.01 ug/L	E
			chly	Chlorpyrifos	2921-88-2	0.05	0.02 ug/L	E
			diaz	Diazinon	333-41-5	0.5	0.01 ug/L	E
			prth	Parathion (Ethyl parathion)	56-38-2	0.1	0.02 ug/L	E
			mala	Malathion	121-75-5	0.1	0.01 ug/L	E
			deml	Total Demeton	8065-48-3	0.2	0.01 ug/L	E
	617 W	617 W	meox	Methoxychlor	72-43-5	2	0.02 ug/L	E
			mirx	Mirex	2385-85-5	0.02	0.02 ug/L	E
			dico	Dicofol	115-32-2	1	0.5 ug/L	E

\*The MDLs listed are not instrument specific.

\*Significant Figures:

Numeric Value - The actual number of significant figures

E (EPA) - Numbers less than 10 have 2 significant figures and numbers greater than or equal to 10 have 3

M (Metals) - Numbers less than 100 have 2 significant figures and numbers greater than or equal to 100 have 3

O (Organics) - Numbers less than 1 have 1 significant figure, numbers less than 100 but not less than 1 have 2 significant figures, and numbers greater than or equal to 100 have 3 significant

3 of 3

871840 CoC Print Group 001 of 001

ORIGIN ID: DNEA (872) 727-1123 SAMPLE RECEIVING FACE ANALYTICAL 400 BETHANY STE 180 ALLEN, TX 75013 UNITED STATES US	SHIP DATE: 25APR19 ACTWT: 28.10 LB RAW CAD: 0506784/CAFE3211
TO SAMPLE RECEIVING ANA LAB 2600 DUDLEY RD KILGORE TX 75662	BILL GENDER
084-0561 REF 1	
	
FedEx Express 	
TRK# 4901 3087 5520 0201	FRI - 26 APR 10:30A PRIORITY OVERNIGHT
46 GGGA	75662 TX-US SHV
	

Page 28 of 28



Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

May 10, 2019

Chuck Wallgren  
Pollution Control Services  
1532 Universal City Blvd. #100  
Universal City, TX 78148

RE: Project: 551100  
Pace Project No.: 75107183

Dear Chuck Wallgren:

Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melissa McCullough  
melissa.mccullough@pacelabs.com  
(972)727-1123  
Project Manager

Enclosures

cc: Michael Klang



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC  
400 West Bethany Drive - Suite 190  
Allen, TX 75013  
(972)727-1123

## CERTIFICATIONS

Project: 551100  
Pace Project No.: 75107183

---

### Dallas Certification IDs:

400 West Bethany Dr Suite 190, Allen, TX 75013  
Florida Certification #: E871118  
Texas T104704232-18-26  
EPA# TX00074  
Texas Certification #: T104704232-18-26

Kansas Certification #: E-10388  
Arkansas Certification #: 88-0647  
Oklahoma Certification #: 8727  
Louisiana Certification #: 30686  
Iowa Certification #: 408

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE SUMMARY

Project: 551100  
Pace Project No.: 75107183

Lab ID	Sample ID	Matrix	Date Collected	Date Received
75107183001	551100	Water	04/24/19 08:35	04/25/19 10:30

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: 551100  
Pace Project No.: 75107183

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
75107183001	551100	EPA 624 Low	ZST	37	PASI-D
		SM 4500-CN-E	JAP2	1	PASI-D
		SM 4500-CN-G	JAP2	1	PASI-D

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: 551100  
Pace Project No.: 75107183

Sample: 551100 Lab ID: 75107183001 Collected: 04/24/19 08:35 Received: 04/25/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>624 Volatile Organics</b> Analytical Method: EPA 624 Low									
Acrolein	ND	ug/L	50.0	7.9	1		04/26/19 03:46	107-02-8	
Acrylonitrile	ND	ug/L	50.0	6.0	1		04/26/19 03:46	107-13-1	
Benzene	ND	ug/L	10.0	0.49	1		04/26/19 03:46	71-43-2	
Bromoform	ND	ug/L	10.0	7.5	1		04/26/19 03:46	75-25-2	
Carbon tetrachloride	ND	ug/L	2.0	1.1	1		04/26/19 03:46	56-23-5	
Chlorobenzene	ND	ug/L	10.0	0.37	1		04/26/19 03:46	108-90-7	
Dibromochloromethane	ND	ug/L	10.0	0.40	1		04/26/19 03:46	124-48-1	
Chloroethane	ND	ug/L	50.0	0.95	1		04/26/19 03:46	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	10.0	3.2	1		04/26/19 03:46	110-75-8	
Chloroform	ND	ug/L	10.0	1.2	1		04/26/19 03:46	67-66-3	
Bromodichloromethane	ND	ug/L	10.0	0.50	1		04/26/19 03:46	75-27-4	
1,1-Dichloroethane	ND	ug/L	5.0	1.2	1		04/26/19 03:46	75-34-3	
1,4-Dichlorobenzene	ND	ug/L	10.0	0.40	1		04/26/19 03:46	106-46-7	
1,3-Dichlorobenzene	ND	ug/L	10.0	0.43	1		04/26/19 03:46	541-73-1	
1,2-Dichlorobenzene	ND	ug/L	10.0	0.37	1		04/26/19 03:46	95-50-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	0.45	1		04/26/19 03:46	106-93-4	
1,2-Dichloroethane	ND	ug/L	10.0	1.1	1		04/26/19 03:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	1.1	1		04/26/19 03:46	75-35-4	
1,2-Dichloropropane	ND	ug/L	10.0	0.49	1		04/26/19 03:46	78-87-5	
Total 1,3-Dichloropropene	ND	ug/L	10.0	3.7	1		04/26/19 03:46	542-75-6	N2
Ethylbenzene	ND	ug/L	10.0	0.46	1		04/26/19 03:46	100-41-4	
Bromomethane	ND	ug/L	50.0	1.2	1		04/26/19 03:46	74-83-9	
Chloromethane	ND	ug/L	50.0	1.1	1		04/26/19 03:46	74-87-3	
2-Butanone (MEK)	ND	ug/L	50.0	4.9	1		04/26/19 03:46	78-93-3	
Methylene Chloride	ND	ug/L	20.0	10.0	1		04/26/19 03:46	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	1.5	1		04/26/19 03:46	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	1.5	1		04/26/19 03:46	127-18-4	
Toluene	ND	ug/L	10.0	1.3	1		04/26/19 03:46	108-88-3	
trans-1,2-Dichloroethene	ND	ug/L	10.0	1.2	1		04/26/19 03:46	156-60-5	
1,1,1-Trichloroethane	ND	ug/L	10.0	0.69	1		04/26/19 03:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	1.3	1		04/26/19 03:46	79-00-5	
Trichloroethene	ND	ug/L	10.0	0.60	1		04/26/19 03:46	79-01-6	
Vinyl chloride	ND	ug/L	10.0	0.93	1		04/26/19 03:46	75-01-4	
Total Trihalomethanes (Calc.)	ND	ug/L	10.0	3.4	1		04/26/19 03:46		
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	106	%	70-130		1		04/26/19 03:46	460-00-4	
Toluene-d8 (S)	106	%	70-130		1		04/26/19 03:46	2037-26-5	
1,2-Dichloroethane-d4 (S)	120	%	70-130		1		04/26/19 03:46	17060-07-0	

### 4500CNE Cyanide, Total

Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C

Cyanide	ND	ug/L	10.0	4.0	1	05/08/19 13:58	05/08/19 15:05	57-12-5
---------	----	------	------	-----	---	----------------	----------------	---------

### 4500CNG Cyanide, Amenable

Analytical Method: SM 4500-CN-G Preparation Method: SM 4500-CN-C

Amenable Cyanide	ND	ug/L	10.0	4.0	1	05/08/19 16:13	05/08/19 16:14	57-12-5
------------------	----	------	------	-----	---	----------------	----------------	---------

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA

Project: 551100  
Pace Project No.: 75107183

QC Batch: 116711 Analysis Method: EPA 624 Low  
QC Batch Method: EPA 624 Low Analysis Description: 624 MSV  
Associated Lab Samples: 75107183001

METHOD BLANK: 525885 Matrix: Water  
Associated Lab Samples: 75107183001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	10.0	0.69	04/25/19 17:27	
1,1,2,2-Tetrachloroethane	ug/L	ND	10.0	1.5	04/25/19 17:27	
1,1,2-Trichloroethane	ug/L	ND	10.0	1.3	04/25/19 17:27	
1,1-Dichloroethane	ug/L	ND	5.0	1.2	04/25/19 17:27	
1,1-Dichloroethene	ug/L	ND	10.0	1.1	04/25/19 17:27	
1,2-Dibromoethane (EDB)	ug/L	ND	10.0	0.45	04/25/19 17:27	
1,2-Dichlorobenzene	ug/L	ND	10.0	0.37	04/25/19 17:27	
1,2-Dichloroethane	ug/L	ND	10.0	1.1	04/25/19 17:27	
1,2-Dichloropropane	ug/L	ND	10.0	0.49	04/25/19 17:27	
1,3-Dichlorobenzene	ug/L	ND	10.0	0.43	04/25/19 17:27	
1,4-Dichlorobenzene	ug/L	ND	10.0	0.40	04/25/19 17:27	
2-Butanone (MEK)	ug/L	ND	50.0	4.9	04/25/19 17:27	
2-Chloroethylvinyl ether	ug/L	ND	10.0	3.2	04/25/19 17:27	
Acrolein	ug/L	ND	50.0	7.9	04/25/19 17:27	
Acrylonitrile	ug/L	ND	50.0	6.0	04/25/19 17:27	
Benzene	ug/L	ND	10.0	0.49	04/25/19 17:27	
Bromodichloromethane	ug/L	ND	10.0	0.50	04/25/19 17:27	
Bromoform	ug/L	ND	10.0	7.5	04/25/19 17:27	
Bromomethane	ug/L	ND	50.0	1.2	04/25/19 17:27	
Carbon tetrachloride	ug/L	ND	2.0	1.1	04/25/19 17:27	
Chlorobenzene	ug/L	ND	10.0	0.37	04/25/19 17:27	
Chloroethane	ug/L	ND	50.0	0.95	04/25/19 17:27	
Chloroform	ug/L	ND	10.0	1.2	04/25/19 17:27	
Chloromethane	ug/L	ND	50.0	1.1	04/25/19 17:27	
Dibromochloromethane	ug/L	ND	10.0	0.40	04/25/19 17:27	
Ethylbenzene	ug/L	ND	10.0	0.46	04/25/19 17:27	
Methylene Chloride	ug/L	ND	20.0	10.0	04/25/19 17:27	
Tetrachloroethene	ug/L	ND	10.0	1.5	04/25/19 17:27	
Toluene	ug/L	ND	10.0	1.3	04/25/19 17:27	
Total 1,3-Dichloropropene	ug/L	ND	10.0	3.7	04/25/19 17:27	N2
Total Trihalomethanes (Calc.)	ug/L	ND	10.0	3.4	04/25/19 17:27	
trans-1,2-Dichloroethene	ug/L	ND	10.0	1.2	04/25/19 17:27	
Trichloroethene	ug/L	ND	10.0	0.60	04/25/19 17:27	
Vinyl chloride	ug/L	ND	10.0	0.93	04/25/19 17:27	
1,2-Dichloroethane-d4 (S)	%	103	70-130		04/25/19 17:27	
4-Bromofluorobenzene (S)	%	101	70-130		04/25/19 17:27	
Toluene-d8 (S)	%	100	70-130		04/25/19 17:27	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: 551100  
Pace Project No.: 75107183

LABORATORY CONTROL SAMPLE: 525886

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	19.9	21.5	108	52-162	
1,1,2,2-Tetrachloroethane	ug/L	20.1	18.2	90	46-157	
1,1,2-Trichloroethane	ug/L	19.9	20.6	103	52-150	
1,1-Dichloroethane	ug/L	20	22.3	111	59-155	
1,1-Dichloroethene	ug/L	19.8	19.7	99	1-234	
1,2-Dibromoethane (EDB)	ug/L	20	20.0	100	81-118	
1,2-Dichlorobenzene	ug/L	20	21.1	106	18-190	
1,2-Dichloroethane	ug/L	19.9	21.5	108	49-155	
1,2-Dichloropropane	ug/L	19.9	22.0	110	76-124	
1,3-Dichlorobenzene	ug/L	19.9	21.2	106	59-156	
1,4-Dichlorobenzene	ug/L	20	21.3	106	18-190	
2-Butanone (MEK)	ug/L	100	75.2	75	60-130	
2-Chloroethylvinyl ether	ug/L	20.1	17.5	87	1-305	
Acrolein	ug/L	200	182	91	49-138	
Acrylonitrile	ug/L	199	166	83	57-137	
Benzene	ug/L	20	22.3	111	37-151	
Bromodichloromethane	ug/L	19.9	21.4	107	35-155	
Bromoform	ug/L	19.8	20.8	105	45-169	
Bromomethane	ug/L	20	21.7J	108	1-242	
Carbon tetrachloride	ug/L	19.8	21.6	109	70-140	
Chlorobenzene	ug/L	19.8	21.5	109	37-160	
Chloroethane	ug/L	20.1	26.5J	131	14-230	
Chloroform	ug/L	19.8	22.0	111	51-138	
Chloromethane	ug/L	19.9	22.4J	113	1-273	
Dibromochloromethane	ug/L	19.8	19.8	100	53-149	
Ethylbenzene	ug/L	20.1	23.0	114	37-162	
Methylene Chloride	ug/L	20.4	23.9	117	1-221	
Tetrachloroethene	ug/L	19.9	21.5	108	64-148	
Toluene	ug/L	20	22.1	110	47-150	
Total 1,3-Dichloropropene	ug/L	40.1	41.5	103	70-130 N2	
Total Trihalomethanes (Calc.)	ug/L		83.9			
trans-1,2-Dichloroethene	ug/L	20	23.0	115	54-156	
Trichloroethene	ug/L	20	22.0	110	71-157	
Vinyl chloride	ug/L	20	21.4	107	1-251	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 525887 525888

Parameter	Units	75107176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	1990	1990	2250	2150	113	108	52-162	5	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	2010	2010	1950	1910	97	95	46-157	2	20	
1,1,2-Trichloroethane	ug/L	ND	1990	1990	2110	2100	106	106	52-150	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551100  
Pace Project No.: 75107183

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 525887 525888													
Parameter	Units	75107176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1-Dichloroethane	ug/L	ND	2000	2000	2310	2250	115	113	59-155	2	20		
1,1-Dichloroethene	ug/L	ND	1980	1980	2330	2230	118	113	1-234	4	20		
1,2-Dibromoethane (EDB)	ug/L	ND	2000	2000	2090	2100	104	105	77-122	0	20		
1,2-Dichlorobenzene	ug/L	ND	2000	2000	2090	2050	105	103	18-190	2	20		
1,2-Dichloroethane	ug/L	ND	1990	1990	2200	2210	111	111	49-155	1	20		
1,2-Dichloropropane	ug/L	ND	1990	1990	2230	2180	112	110	1-210	2	20		
1,3-Dichlorobenzene	ug/L	ND	1990	1990	2070	2020	104	102	59-156	2	20		
1,4-Dichlorobenzene	ug/L	ND	2000	2000	2090	2060	105	103	18-190	1	20		
2-Butanone (MEK)	ug/L	ND	10000	10000	11200	11300	112	113	62-131	1	20		
2-Chloroethylvinyl ether	ug/L	ND	2010	2010	1940	1970	97	98	40-140	1	20		
Acrolein	ug/L	ND	20000	20000	19700	19500	98	97	10-140	1	20		
Acrylonitrile	ug/L	ND	19900	19900	21600	21700	109	109	10-140	0	20		
Benzene	ug/L	ND	2000	2000	2250	2200	112	110	37-151	2	20		
Bromodichloromethane	ug/L	ND	1990	1990	2110	2070	106	104	35-155	2	20		
Bromoform	ug/L	ND	1980	1980	2130	2130	108	108	45-169	0	20		
Bromomethane	ug/L	ND	2000	2000	1800	1840	90	92	1-242	2	20		
Carbon tetrachloride	ug/L	ND	1980	1980	2230	2120	112	107	70-140	5	20		
Chlorobenzene	ug/L	ND	1980	1980	2140	2120	108	107	37-160	1	20		
Chloroethane	ug/L	ND	2010	2010	2580	2450	128	122	14-230	5	20		
Chloroform	ug/L	ND	1980	1980	2220	2210	112	111	51-138	1	20		
Chloromethane	ug/L	ND	1990	1990	2350	2250	119	113	10-273	4	20		
Dibromochloromethane	ug/L	ND	1980	1980	1930	1920	98	97	53-149	0	20		
Ethylbenzene	ug/L	ND	2010	2010	2350	2290	117	114	37-162	3	20		
Methylene Chloride	ug/L	ND	2040	2040	2570	2530	101	99	1-221	2	20		
Tetrachloroethene	ug/L	ND	1990	1990	2170	2130	109	107	64-148	2	20		
Toluene	ug/L	ND	2000	2000	2220	2180	111	109	47-150	2	20		
Total 1,3-Dichloropropene	ug/L	ND	4010	4010	4010	3980	100	99	70-130	1	20	N2	
Total Trihalomethanes (Calc.)	ug/L	ND			8390	8330				1	20		
trans-1,2-Dichloroethene	ug/L	ND	2000	2000	2400	2300	120	115	54-156	4	20		
Trichloroethene	ug/L	ND	2000	2000	2360	2280	118	114	71-157	3	20		
Vinyl chloride	ug/L	ND	2000	2000	2280	2190	114	110	1-251	4	20		
1,2-Dichloroethane-d4 (S)	%						104	104	70-130				
4-Bromofluorobenzene (S)	%						100	99	70-130				
Toluene-d8 (S)	%						102	101	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551100  
Pace Project No.: 75107183

QC Batch: 117486	Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-C	Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 75107183001	

METHOD BLANK: 529363 Matrix: Water  
Associated Lab Samples: 75107183001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	ug/L	ND	10.0	4.0	05/08/19 15:04	

LABORATORY CONTROL SAMPLE: 529364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	ug/L	100	99.4	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 529365 529366

Parameter	Units	75107155002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	ug/L	ND	100	100	91.3	101	89	99	85-115	10	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: 551100  
Pace Project No.: 75107183

QC Batch: 117529	Analysis Method: SM 4500-CN-G
QC Batch Method: SM 4500-CN-C	Analysis Description: 4500CNG Cyanide, Amenable
Associated Lab Samples: 75107183001	

METHOD BLANK: 529568  
Associated Lab Samples: 75107183001

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Amenable Cyanide	ug/L	ND	10.0	4.0	05/08/19 16:14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: 551100  
Pace Project No.: 75107183

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-D Pace Analytical Services - Dallas

### ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

## REPORT OF LABORATORY ANALYSIS


This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 551100  
Pace Project No.: 75107183

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
75107183001	551100	EPA 624 Low	116711		
75107183001	551100	SM 4500-CN-C	117486	SM 4500-CN-E	117511
75107183001	551100	SM 4500-CN-C	117529	SM 4500-CN-G	117530

### REPORT OF LABORATORY ANALYSIS

	Document Name: Sample Condition Upon Receipt	Document Revised: 03-14-19 Page 1 of 1
	Document No.: F-DAL-C-001-rev.9	Issuing Authority: Pace Dallas Quality Office

### Sample Condition Upon Receipt

☒ Dallas ☐ Ft Worth

WO#: 75107183

Client Name: PCS Project Work order:

Courier: FedEx ☐ UPS ☐ USPS ☐ Client ☐ LSO ☒ PACE ☐ Other: \_\_\_\_\_



Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box: Yes ☐ No ☒ Packing Material: Bubble Wrap/Bags ☒ Foam ☐ None ☐ Other ☐

Received on ice: Yes ☐ No ☐ Type of Ice: Wet ☐ Blue ☐

Thermometer Used: IR-11 Cooler Temp °C: 2.6 (Recorded) 10.0 (Correction Factor) 2.6 (Actual)

Temperature should be above freezing to 6°C

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Project sampled in USDA Regulated Area: State Sampled: <u>TX</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

# POLLUTION CONTROL SERVICES

1532 Universal City Blvd, Suite 100  
Universal City, TX 78148-3318  
Facsimile 210.658.7903  
210.340.0343

## CHAIN OF CUSTODY & SUBCONTRACT TRACKING SHEET

TO: Pace Analytical Services, Inc.  
400 W Bethany Rd, Ste 190  
Allen, TX 75013

Relinquished by: Greg Felux

Date/Time: 4/24/2019@ 1700

Received by: *gemini Wagon / Pace*

Date/Time: *4/25/19 10:30*

PCS#	Date	Time	Analysis Requested	Pres	T. A. T.
551100	04/24/2019	0835	Phenols, Distillable	H2SO4	std
551100	-----	---	Cyanide, Amenable	NaOH	---
551100	-----	---	Volatiles 624	ice	---

Comments/Special Instructions: \_\_\_\_\_

**WO#: 75107183**

PM: MLM

Due Date: 05/09/19

CLIENT: PCS

Unless otherwise requested, send results and invoice to:

Chuck Wallgren  
Pollution Control Services  
1532 Universal City Blvd, Suite 100  
Universal City, TX 78148-3318

Authorized by: *[Signature]*

Date: *4/24/19*





Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Report Page 1 of 5

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

Employee Owned Integrity Caring Continual Improvement

## Results

Printed: 05/10/2019 9:21

Page 1 of 2

### Report To

75107183

Account  
**PAMM-N**

Project  
**872438**

Pace Analytical - Dallas  
Melissa McCullough  
400 West Bethany Drive  
Suite 190  
Allen, TX 75013

## Results

1780134 75107183001

Received: 05/02/2019

Non-Potable Water

Collected by: Client

Pace Analytical - Da

PO: DASUB2118

Taken: 04/24/2019 08:35:00

EPA 420.4 1

Prepared: 836930 05/07/2019 13:00:00 Analyzed 837558 05/09/2019 16:54:00 MLC

Parameter	Results	Units	RL	Flag	CAS	Bottle
N Phenolics, Total Recoverable	<0.005	mg/L	0.005			02

## Sample Preparation

1780134 75107183001

Received: 05/02/2019

DASUB2118

EPA 420.4 1

Prepared: 836930 05/07/2019 13:00:00 Analyzed 836930 05/07/2019 13:00:00 CRS

N Phenol Distillation	50/50	ml				01
-----------------------	-------	----	--	--	--	----





## Results

Printed: 05/10/2019 9:21

Page 2 of 2

### Qualifiers:

We report results on an As Received or wet basis unless marked Dry Weight. Unless otherwise noted, testing was performed at Ana-labs corporate laboratory that holds the following Federal and State certificates: EPA Lab Number TX00063, US Department of Agriculture Soil Import Permit P330-17-00117, Texas Commission on Environmental Quality Commercial Drinking Water Lab Approval (Lab ID: TX219), Texas Commission on Environmental Quality NELAP T104704201-19-15, Louisiana Department of Environmental Quality Laboratory Certification (NELAP, LELAP) #02008, Louisiana Department of Health and Hospitals Drinking Water (NELAP) Certificate No LA026, Oklahoma Department of Environmental Quality TNI Laboratory Accreditation Program Certificate No. 2018-126, Arkansas Department of Environmental Quality Certification #18-068-0. The Accredited column designates accreditation by N – NELAC, or z – not covered under NELAC scope of accreditation.

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of Ana-Lab Corp. Unless otherwise specified, these test results meet the requirements of NELAC.

RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

*Bill Peery*

Bill Peery, MS, VP Technical Services





Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Report Page 3 of 5

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

LELAP-accredited #02008

Employee Owned

Integrity

Caring

Continual Improvement

## Quality Control

Printed 05/10/2019

Page 1 of 1

Report to:

Pace Analytical - Dallas  
Melissa McCullough  
400 West Bethany Drive  
Suite 190  
Allen, TX 75013

Account  
**PAMM-N**

Project  
**872438**

Analytical Set 837558

EPA 420.4 1

### Blank

Parameter	PrepSet	Reading	MDL	MDL	Units	File
Phenolics, Total Recoverable	836930	ND	0.00377	0.005	mg/L	119912265

### CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phenolics, Total Recoverable	0.203	0.200	mg/L	102	90.0 - 110	119912264
	0.210	0.200	mg/L	105	90.0 - 110	119912275
	0.210	0.200	mg/L	105	90.0 - 110	119912283

### Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Phenolics, Total Recoverable	1779272	0.112	0.110	mg/L	1.80	20.0
	1779273	ND	ND	mg/L		20.0

### ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phenolics, Total Recoverable	0.208	0.200	mg/L	104	90.0 - 110	119912263

### LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Phenolics, Total Recoverable	836930	0.201	0.203	0.200	90.0 - 110	100	102	mg/L	0.990	20.0

### Mat. Spike

Parameter	Sample	Spike	Unknown	Known	Units	Recovery %	Limits %	File
Phenolics, Total Recoverable	1779272	0.310	0.110	0.200	mg/L	100	90.0 - 110	119912270
	1779273	0.208	ND	0.200	mg/L	104	90.0 - 110	119912273

\* Out RPD is Relative Percent Difference:  $\text{abs}(r1-r2) / \text{mean}(r1,r2) * 100\%$

Recover% is Recovery Percent:  $\text{result} / \text{known} * 100\%$

Blank - Method Blank; CCV - Continuing Calibration Verification; ICV - Initial Calibration Verification



1 of 2

872438 CoC Print Group 001 of 001

## Chain of Custody



Workorder: 75107183      Workorder Name: 551100  
 Report / Invoice To: Subcontract To:

Melissa McCullough  
 Pace Analytical Dallas  
 400 West Bethany Drive  
 Suite 190  
 Allen, TX 75013  
 Phone (972)727-1123  
 Email: melissa.mccullough@pacelabs.com

Anahab      P.O. DASUB2118  
 Results Requested By: 5/9/2019 NMM

State of Sample Origin: TX TPDES

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	420 Phenol	LAB USE ONLY
1	551100	4/24/2018 08:35	75107183001	Water		X	1780134
2							
3							
4							
5							

Transfers: Released By: Date/Time: Received By: Date/Time:

1: Alyssa Smith / Pace 5/11/19 17:20      5/11/19 17:20  
 2:      5/11/19 17:20      5/11/19 17:20  
 3:      5/11/19 17:20      5/11/19 17:20

Cooler Temperature on Receipt: °C      Custody Seal: (Y or N)      Received on Ice: (Y or N)      Samples Intact: (Y or N)

Comments: RL- 10 ug/L

 See Attached for  
 Tracking # and Temp

Tuesday, April 30, 2019 11:37:44 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

1  
2

2 of 2

872438 CoC Print Group 001 of 001

Therm	Con Fact	Temp (°C)
<input type="checkbox"/> 6205	---	---
<input type="checkbox"/> 6443	---	---
<input type="checkbox"/> 6444	---	---
<input checked="" type="checkbox"/> 6093	0.2	1.4/1.4
Date	5/2	Time 10:12 Tech 140

ORIGIN ID: DNEA (972) 727-1123  
 SAMPLE RECEIVING  
 PACE ANALYTICAL  
 400 BETHANY STE 180

SHIP DATE: 01MAY19  
 ACTWGT: 15.80 LB  
 CAD: 0508784/CAFE3211

ALLEN, TX 75013  
 UNITED STATES US

BILL BENDER

TO SAMPLE RECEIVING  
 ANA LAB  
 2600 DUDLEY RD

KILGORE TX 75662

(800) 984-1651

ACT1

DEP11

IF YOU ARE NOT THE ADDRESSEE, PLEASE RETURN TO THE SENDER



FedEx  
 Express



TRK# 1021 3374 3127  
 0201

THU - 02 MAY 10:30A  
 PRIORITY OVERNIGHT

46 GGGA

75662

TX-US SHV



Therm	Con Fact	Temp (°C)
<input type="checkbox"/> 6205	---	---
<input type="checkbox"/> 6444	---	---
<input type="checkbox"/> 644	---	---
<input type="checkbox"/> 601	---	---
Date	---	---

Therm	Con Fact	Temp (°C)
<input type="checkbox"/> 6205	---	---
<input type="checkbox"/> 6444	---	---
<input type="checkbox"/> 644	---	---
<input type="checkbox"/> 601	---	---
Date	---	---

# Pollution Control Services

## Sample Log-In Checklist

5 51 0 9 9 5 51 1 0 0

PCS Sample No(s) \_\_\_\_\_ COC No. 5 51 0 9 9

Client/Company Name: SARA Checklist Completed by: Cur

### Sample Delivery to Lab Via:

Client Drop Off ☐ Commercial Carrier: Bus ☐ UPS ☐ Lone Star ☐ FedEx ☐ USPS ☐

PCS Field Services: Collection/Pick Up ☐ Other: \_\_\_\_\_

### Sample Kit/Coolers

Sample Kit/Cooler? Yes ☐ No ☒ Sample Kit/Cooler: Intact? Yes ☒ No ☐

Custody Seals on Sample Kit/Cooler: Not Present ☐ If Present, Intact ☐ Broken ☐

Sample Containers Intact; Unbroken and Not Leaking? Yes ☒ No ☐

Custody Seals on Sample Bottles: Not Present ☐ If Present, Intact ☒ Broken ☐

COC Present with Shipment or Delivery or Completed at Drop Off? Yes ☐ No ☒

Has COC sample date/time and other pertinent information been provided by client/sampler? Yes ☒ No: ☐

Has COC been properly Signed when Received/Relinquished? Yes ☒ No ☐

Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ☒ No ☐

All Samples Received before Hold Time Expiration? Yes ☒ No ☐

Sufficient Sample Volumes for Analysis Requested? Yes ☒ No ☐

Zero Headspace in VOA Vial if Present? Yes ☐ No ☒

### Sample Preservation:

\* Cooling: Not Required ☒ or Required ☐

If cooling required, record temperature of submitted samples Observed/Corrected 6, 3 °C

Is Ice Present in Sample Kit/Cooler? ☐ Yes ☒ No Samples received same day as collected? ☒ Yes ☐ No

Lab Thermometer Make and Serial Number: EX Tech 10093657 Other: \_\_\_\_\_

Acid Preserved Sample - If present, is pH <2? Yes ☒ No ☐ \*\* ☒ H<sub>2</sub>SO<sub>4</sub> ☒ HNO<sub>3</sub> ☐ H<sub>3</sub>PO<sub>4</sub>

Base Preserved Sample - If present, is pH >12? Yes ☐ No ☒ NaOH

Other Preservation: \_\_\_\_\_ If Present, Meets Requirements? Yes ☐ No ☒

Sample Preservations Checked by: Cur Date 4/24/19 Time 12:00

pH paper used to check sample preservation (PCS log #): 19.023 (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

### Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ Revision Comments

Person Notified: \_\_\_\_\_ Contacted by: \_\_\_\_\_

Notified Date: \_\_\_\_\_ Time: \_\_\_\_\_

Method of Contact: At Drop Off: ☐ Phone ☐ Left Voice Mail ☐ E-Mail ☐ Fax ☐

Unable to Contact ☐ Authorized Laboratory to Proceed: \_\_\_\_\_ (Lab Director)

Regarding / Comments: \_\_\_\_\_

Actions taken to correct problems/discrepancies: \_\_\_\_\_

Receiving qualifier needed (requires client notification above) Temp. ☐ Holding Time ☐ Initials: \_\_\_\_\_

Receiving qualifier entered into LIMS at login Initial/Date: \_\_\_\_\_

Revision Comments: \_\_\_\_\_

\* Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). \*\* Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt - however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.