DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
JOINT BASE SAN ANTONIO LACKLAND TEXAS

22 August 2019

AFCEC/CIBE
9801 Reese Blvd North, Ste 210
Lubbock, TX 79416-2107

Executive Director
Applications Review and Processing Team, MC-148
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Subject: Texas Industrial Wastewater Permit Renewal Application
Permit Number WQ0003955000 (EPA Reference TX0116114)
Former Kelly Air Force Base, San Antonio, Texas

The Air Force Civil Engineer Center (AFCEC) has prepared the enclosed renewal application for Industrial Wastewater Permit Number WQ0003955000 (EPA Reference TX0116114). The current permit expires on March 1, 2020. In addition to the renewal, a minor modification to the permit has been requested to terminate two outfalls. The East Kelly and Site S-1 groundwater treatment plants were placed in standby mode on February 18, 2013, and January 24, 2014, respectively and have not treated or discharged effluent since that time. The Texas Commission on Environmental Quality (TCEQ) Remediation Division approved the decommissioning and dismantling of these two groundwater treatment plants in 2018 and 2019. Decommissioning and Dismantling Work Plans are currently being developed for the two groundwater treatment plants.

The Renewal Fee was paid via ePAY with Vouchers #429205 and #429206 on August 14, 2019.

If you have comments or questions regarding this application, please feel free to contact me at (806) 885-5010.

Sincerely,

PAUL F. CARROLL, GS-13, P.G.
Program Manager

Enclosures:

1. One original, two hard copies, and 1 compact disc (CD) of TCEQ Industrial Wastewater Permit Application – Administrative and Technical Reports with Attachments

cc:

Ms. Eleanor Wehner, TCEQ Remediation Division (1 CD)
Mr. Jorge Salazar, TCEQ Region 13 (1 CD)
Mr. Gregg Lyssy, U.S. Environmental Protection Agency (EPA), Region 6 (2 CDs)
Ms. Denise Miller, AFCEC/CIBE (1 CD)
Mr. Richard Black, Cherokee Nation Strategic Programs (CNSP) (1 hard copy, 1 CD)
Mr. Mark Weegar, CNSP (1 CD)
Mr. Praveen Srivastav, Aptim Federal Services, LLC (APTIM)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TCEQ INDUSTRIAL WASTEWATER PERMIT APPLICATION

INDUSTRIAL ADMINISTRATIVE REPORT

Complete and submit this checklist with the application.

APPLICANT NAME: US Department of the Air Force, former Kelly AFB

PERMIT NUMBER: WQ0003955000

Check Y for each of the following items included in this application. If an item was not included, check N.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☐	☒
Administrative Report 1.1	☐	☒	Worksheet 9.0	☐	☒
SPIF	☒	☐	Worksheet 10.0	☐	☒
Core Data Form	☒	☐	Worksheet 11.0	☐	☒
Technical Report 1.0	☒	☐	Worksheet 11.1	☐	☒
Worksheet 1.0	☒	☐	Worksheet 11.2	☐	☒
Worksheet 2.0	☒	☐	Worksheet 11.3	☐	☒
Worksheet 3.0	☒	☐	Original USGS Map	☐	☒
Worksheet 3.1	☒	☐	Affected Landowners Map	☐	☒
Worksheet 3.2	☐	☒	Landowner Disk or Labels	☐	☒
Worksheet 3.3	☐	☒	Flow Diagram	☒	☐
Worksheet 4.0	☒	☐	Site Drawing	☒	☐
Worksheet 4.1	☐	☒	Original Photographs	☒	☐
Worksheet 5.0	☐	☒	Solids Management Program	☐	☒
Worksheet 6.0	☐	☒	Water Balance	☒	☐
Worksheet 7.0	☐	☒			

For Commission Use Only:
Segment Number: _____ County: _____ Expiration Date: _____
Proposed/Current Permit Number: _____ Region: _____

INDUSTRIAL ADMINISTRATIVE REPORT 1.0

The following information **is required** for **all** applications for TPDES permits and TLAPs.

1. TYPE OF APPLICATION AND FEES (Instructions, Page 21)

a. Permit No.: WQ0003955000 Expiration Date: March 1, 2020

EPA ID No.: TX0116114

b. Check the box next to the appropriate application type.

- ☐ New TPDES permit
- ☐ Major amendment with renewal
- ☒ Renewal with changes
- ☐ Minor amendment without renewal
- ☐ Stormwater only discharge
- ☐ New TLAP permit
- ☐ Major amendment without renewal
- ☐ Renewal without changes
- ☐ Minor modification without renewal

c. If applying for an **amendment** or **modification** of a permit, describe the request in detail: Deletion of Outfalls 003 and 004 because discharge to these outfalls has been terminated

d. Application Fee

Check the box next to the amount submitted for the application fee:

EPA Classification	New	Major Amendment (With or Without Renewal)	Renewal (With or Without Changes)	Minor Amendment/ Minor Modification (Without Renewal)
Minor facility not subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☐ $350	☐ $350	☒ $315	☐ $150
Minor facility subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☐ $1,250	☐ $1,250	☐ $1,215	☐ $150
Major facility	N/A *	☐ $2,050	☐ $2,015	☐ $450

* All facilities are designated as minors until formally classified as a major by EPA.

e. Payment Information:

Mailed Check or money order number: Click to enter text.

Check or money order amount: Click to enter text.

Named printed on check or money order: Click to enter text.

ePAY Voucher number: 429205 and 429206

Copy of voucher attached? ☒ Yes **Attachment**: ePAY voucher attached after Administrative Report

2. APPLICANT INFORMATION (Instructions, Pages 21-22)

a. Facility Owner (Owner of the facility must apply for the permit.)

- Provide the legal name of the entity (applicant) applying for this permit: US Department of the Air Force

  (The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.)

- If the applicant is currently a customer with the TCEQ, provide the Customer Number, which can be located using the TCEQ's Central Registry Customer Search[1]: **CN**600919401

- Provide 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*.

  Mr. ☒ Ms. ☐ First/Last Name: Paul F. Carroll

  Title: Program Manager, AFCEC/CIBE Credential: GS-13, P.G.

b. Co-applicant Information

- Provide the legal name of the co-applicant applying for this permit, if applicable: N/A

  (The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.)

- If the co-applicant is currently a customer with the TCEQ, provide the Customer Number, which can be located using the TCEQ's Central Registry Customer Search: **CN** Click to enter text.

- Provide 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*.

  Mr. ☐ Ms. ☐ First/Last Name: Click to enter text.

  Title: Click to enter text. Credential: Click to enter text.

- Provide a brief description of the need for a co-permittee: Click to enter text.

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 the Administrative Report.

Attachment: 1 – Core Data Form

3. APPLICATION CONTACT INFORMATION (Instructions, Page 22)

If the TCEQ needs additional information regarding this application, who should be contacted?

a. Mr. ☒ Ms. ☐ First/Last Name: Paul F. Carroll Credential: GS-13, P.G.

Organization Name: US Department of the Air Force Title: Program Manager, AFCEC/CIBE

Mailing Address: 9801 Reese Blvd North, Ste 210 City/State/ZIP Code: Lubbock, TX 79416

Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

Check one or both: ☒ Administrative Contact ☒ Technical Contact

[1] http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

b. Mr. ☐ Ms. ☐ First/Last Name: Click to enter text. Credential: Click to enter text.

Organization Name: Click to enter text. Title: Click to enter text.

Mailing Address: Click to enter text. City/State/ZIP Code: Click to enter text.

Phone No.: Click to enter text. Fax No.: Click to enter text. E-mail: Click to enter text.

Check one or both: ☐ Administrative Contact ☐ Technical Contact

Attachment: N/A

4. PERMIT CONTACT INFORMATION (Instructions, Page 22)

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

a. Mr. ☒ Ms. ☐ First/Last Name: Stephen TerMaath Credential: GS-15, PhD, P.E.

Organization Name: US Department of the Air Force Title: Chief, BRAC Program

Mailing Address: 2261 Hughes Avenue, Suite 155 City/State/ZIP Code: JBSA-Lackland, TX 78236-9853

Phone No.: Click to enter text. Fax No.: Click to enter text. E-mail: Click to enter text.

b. Mr. ☒ Ms. ☐ First/Last Name: Paul F. Carroll Credential: GS-13, P.G.

Organization Name: US Department of the Air Force Title: Program Manager, AFCEC/CIBE

Mailing Address: 9801 Reese Blvd North, Suite 210 City/State/ZIP Code: Lubbock, TX 79416

Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

Attachment: N/A

5. BILLING CONTACT INFORMATION (Instructions, Page 22)

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 (form TCEQ-20029).*

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

Mr. ☒ Ms. ☐ First/Last Name: Paul F. Carroll Credential: GS-13, P.G.

Organization Name: US Department of the Air Force Title: Program Manager, AFCEC/CIBE

Mailing Address: 9801 Reese Blvd North, Suite 210 City/State/ZIP Code: Lubbock, TX 79416

Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

6. DMR/MER CONTACT INFORMATION (Instructions, Page 22)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs.

Mr. ☒ Ms. ☐ First/Last Name: Paul F. Carroll Credential: GS-13, P.G.

Organization Name: US Department of the Air Force Title: Program Manager, AFCEC/CIBE

Mailing Address: 9801 Reese Blvd North, Suite 210 City/State/ZIP Code: Lubbock, TX 79416

Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

DMR data must be submitted through the NetDMR[2] system. An electronic reporting account can be

[2] https://www.tceq.texas.gov/permitting/netdmr

established once the facility has obtained the permit number.

7. NOTICE INFORMATION (Instructions, Pages 23-24)

a. Individual Publishing the Notices

Mr. ☒ Ms. ☐ First/Last Name: Malcolm McClendon Credential: AFIMSC Public Affairs

Organization Name: US Department of the Air Force Title: Air Force Installation and Mission Support Center

Mailing Address: 2261 Hughes Ave., Suite 155 City/State/ZIP Code: JBSA-Lackland, TX 78236-9853

Phone No.: 1-866-725-7617 Fax No.: Click to enter text E-mail: malcolm.mcclendon@us.af.mil

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☒ E-mail: paul.carroll.1@us.af.mil

☐ Fax: Click to enter text

☐ Regular Mail (USPS)

Mailing Address: Click to enter text City/State/ZIP Code: Click to enter text

c. Contact in the Notice

Mr. ☒ Ms. ☐ First/Last Name: Malcolm McClendon Credential: AFIMSC Public Affairs

Organization Name: US Department of the Air Force Title: Air Force Installation and Mission Support Center

Phone No.: 1-866-725-7617 Fax No.: Click to enter text E-mail: malcolm.mcclendon@us.af.mil

d. Public Place Information

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

Public building name: San Antonio Public Library – Central Library Location within the building: 2nd Floor (visiting documents)

Physical Address of Building: 600 Soledad St

City: San Antonio County: Bexar

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** Item 8 (REGULATED ENTITY AND PERMITTED SITE INFORMATION.)

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

8. REGULATED ENTITY AND PERMITTED SITE INFORMATION (Instructions Pages 24-25)

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry[3] to determine the RN or to see if the larger site may already be registered as a regulated site:

If the site is found, provide the assigned RN and the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

a. TCEQ issued Regulated Entity Number (RN): **RN**103915435

b. Name of project or site (the name known by the community where located): Former Kelly Air Force Base

c. Is the location address of the facility in the existing permit the same?

   ☒ Yes ☐ No

d. If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

e. Owner of treatment facility: US Department of the Air Force

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

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

   Mr. ☐ Ms. ☐ First/Last or Organization Name: Port Authority of San Antonio (Co-owner with US Department of the Air Force)

   Mailing Address: 907 Billy Mitchell Blvd City/State/ZIP Code: San Antonio, TX 78226-1802

   Phone No.: (210) 362-7800 Fax No.: Click to enter text. E-mail: Click to enter text.

   If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. In some cases, a lease may not suffice - see instructions. **Attachment:** 2 – Co-ownership agreement signed June 10, 2010

[3] http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch

g. Owner of effluent TLAP disposal site (if applicable):

Mr. ☐ Ms. ☐ First/Last or Organization Name: US Department of the Air Force

Mailing Address: 9801 Reese Blvd North, Suite 210 City/State/ZIP Code: Lubbock, TX 79416-2107

Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. **Attachment**: N/A

h. Owner of sewage sludge disposal site (if applicable):

Mr. ☐ Ms. ☐ First/Last or Organization Name: N/A

Mailing Address: Click to enter text. City/State/ZIP Code: Click to enter text.

Phone No.: Click to enter text. Fax No.: Click to enter text. E-mail: Click to enter text.

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. **Attachment**: Click to enter text.

(This information is required only if authorization is sought in the permit for sludge disposal on property owned or controlled by the applicant.)

9. TDPES DISCHARGE/TLAP DISPOSAL INFORMATION (Instructions, Pages 25-28)

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

☐ Yes ☒ No

b. Attach an **original** full size USGS Topographic Map (or an 8.5"×11" **reproduced** portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

- ☒ One-mile radius and three-miles downstream information
- ☒ Applicant's property boundaries
- ☒ Treatment facility boundaries
- ☒ Labeled point(s) of discharge and highlighted discharge route(s)
- ☒ Effluent disposal site boundaries
- ☐ All wastewater ponds
- ☐ Sewage sludge disposal site
- ☐ New and future construction
- ☒ Attachment: 3 – USGS Map

c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ N/A

If **no**, or a **new** application, please give an accurate description: Click to enter text.

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

☐ Yes ☒ No ☐ N/A

If **no**, or a **new or amendment** applications, provide an accurate description: Outfalls 003 and 004 in the existing permit are being removed. Only Outfall 001 is remaining, and the information is accurate for Outfall 001.

e. City nearest the outfall(s): San Antonio, TX

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

g. 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

h. 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

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

☐ Yes ☒ No ☐ N/A

If **no**, or if this a **new or amendment** application, provide an accurate description: Areas designated as Site S-1 Irrigation Areas are being removed from the permit because there is no longer discharge from this groundwater treatment plant. Only the landfill areas will be used for irrigation.

j. City nearest the disposal site: San Antonio, TX

k. County in which the disposal site is located: Bexar

l. Disposal Site Latitude: N LF:29.381726; S LF 29.368300 Longitude: N LF:-98.600468; S LF:-98.591109

m. For **TLAPs**, describe how effluent is/will be routed from the treatment facility to the disposal site: The water is piped underground to a sprinkler system at the landfills.

n. For **TLAPs**, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Lower Leon Creek (Segment 1906)

10. MISCELLANEOUS INFORMATION (Instructions, Page 28)

a. 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: Click to enter text.

b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following:

- Acct. No.: Click to enter text.
- Amt. due: Click to enter text.

c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following:

- Enforcement Order No.: Click to enter text.
- Amt. due: Click to enter text.

11. SIGNATURE PAGE (Instructions, Page 29)

Permit No: WQ0003955000

Applicant Name: US Department of the Air Force

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): Paul F. Carroll

Signatory title: Program Manager

Signature: Paul F Carroll Date: 8/14/2019

(Use blue ink)

Subscribed and Sworn to before me by the said Paul Carroll

on this 14th day of August, 20 19.

My commission expires on the 10th day of July, 20 22.

Lacy Elliott
Notary Public

LACY D. ELLIOTT
Notary Public, State of Texas
Comm. Expires 07-10-2022
Notary ID 126018316

[SEAL]

Lubbock
County, Texas

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

INDUSTRIAL ADMINISTRATIVE REPORT 1.1

The following information is required for **new** and **amendment** applications.

1. AFFECTED LANDOWNER INFORMATION (Instructions, Pages 30-32)

a. Attach a landowners map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.

- ☐ 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 (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of 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 (e.g., sludge surface disposal site or sludge monofill) is located.

Attachment: Click to enter text.

b. Check the box next to the format of the landowners list:

☐ Readable/Writeable CD ☐ Four sets of labels

c. ☐ Check this box to confirm a separate list with the landowners' names and mailing addresses cross-referenced to the landowners map has been attached.

Attachment: Click to enter text.

d. Provide the source of the landowners' names and mailing addresses: Click to enter text.

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): Click to enter text.

2. ORIGINAL PHOTOGRAPHS (Instructions, Page 32)

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.

Attachment: 4 – Photographs

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING INDUSTRIAL 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 33)

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 Name: US Department of the Air Force

2. Permit No.: WQ000395500 EPA ID No.: TX0116114

3. Address of the project (location description that includes street/highway, city/vicinity, and county): Former Kelly Air Force Base, 2261 Hughes Ave., Suite 155, JBSA-Lackland, TX, Bexar County

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

   First/Last Name: Paul F. Carroll Title: Program Manager Credential: GS-13, P.G.

   Organization Name: US Department of the Air Force

   Mailing Address: 9801 Reese Blvd North, Suite 210 City/State/ZIP Code: Lubbock, TX 79416-2107

   Phone No.: (806) 885-5010 Fax No.: (806) 885-2022 E-mail: paul.carroll.1@us.af.mil

5. List the county in which the facility is located: Bexar

6. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property: C0-owner Port Authority of San Antonio

7. 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: From Outfall 001 to Lower Leon Creek (Segment 1906)

8. 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.)

   Attachment: 5 – USGS showing discharge route

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

   Attachment: N/A

10. 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

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

12. Describe existing disturbances, vegetation, and land use: Land use is currently industrial with grassy areas and concrete/asphalt roadways and parking lots.

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

13. List construction dates of all buildings and structures on the property: Click to enter text

14. Provide a brief history of the property, and name of the architect/builder, if known: Click to enter text

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if 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 **Permit No: WQ000**3955000

1. Check or Money Order Number: N/A – paid via ePAY
2. Check or Money Order Amount: Click to enter text.
3. Date of Check or Money Order: Click to enter text.
4. Name on Check or Money Order: Click to enter text.
5. APPLICATION INFORMATION

   Name of Project or Site: Former Kelly Air Force Base

   Physical Address of Project or Site: 2261 Hughes Ave., Suite 155, JBSA-Lackland, TX 78236-9853

   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

ATTACHMENT 1

INDIVIDUAL INFORMATION

1. Individual information (Instructions, Page 33)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., or Miss): Click to enter text.

Full legal name (first, middle, and last): Click to enter text.

Driver's License or State Identification Number: Click to enter text.

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

City, State, and Zip Code: Click to enter text.

Phone No.: Click to enter text.

Fax No.: Click to enter text.

E-mail Address: Click to enter text.

CN: Click to enter text.

For Commission Use Only:
Customer Number:
Regulated Entity Number:
Permit Number:

Attachment to Admin Report

ePAY Voucher #429205 and #429206

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number: 582EA000355274
Date: 08/14/2019 11:54 AM
Payment Method: CC - Authorization 0000014169
Amount: $315.00
ePay Actor: Mary Norris
Actor Email: mary.norris@aptim.com
IP: 65.82.126.100

Payment Contact Information

Name: Mary Norris
Company: Aptim
Address: 4171 Essen Lane, Baton Rouge, LA 70809
Phone: 713-243-7270

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
429205	WW PERMIT - MINOR FACILITY NOT SUBJECT TO 40 CFR 400-471 - RENEWAL		$300.00
429206	30 TAC 305.53B WQ RENEWAL NOTIFICATION FEE		$15.00
	Total fees for transaction:	**$315.00**	

ePay Again | Exit ePay

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

TECHNICAL REPORT 1.0

INDUSTRIAL

The following information **is required** for all applications for a TLAP or an individual TPDES discharge permit.

For additional information or clarification on the requested information, refer to the Instructions for Completing the Industrial Wastewater Permit Application[1] available on the TCEQ website.

If more than one outfall is included in the application, provide applicable information for each individual outfall. **If an item does not apply to the facility, enter N/A** to indicate that the item has been considered. Include separate reports or additional sheets as **clearly cross-referenced attachments** and provide the attachment number in the space provided for the item the attachment addresses.

NOTE: This application is for an industrial wastewater permit only. Additional authorizations from the TCEQ Waste Permits Division or the TCEQ Air Permits Division may be needed.

1. FACILITY/SITE INFORMATION (Instructions, Pages 34-35)

a. Describe the general nature of the business and type(s) of industrial and commercial activities. Include all applicable SIC codes (up to 4).

The Air Force Civil Engineer Center (AFCEC) is managing remediation projects, including a groundwater treatment plant. in accordance with TCEQ standards to make land suitable for use by the local redevelopment authority (Port Authority of San Antonio). SIC Code 9711

b. Describe all wastewater-generating processes at the facility.

Hydrocarbon and chlorinated hydrocarbon contaminated groundwater is intercepted by wells from contaminated remediation sites and pumped to the groundwater treatment plant. The treatment uses hydrogen peroxide and ultraviolet/oxidation and carbon absorption technology to remove the contaminants. The decontaminated effluent is discharged to surface water or is used for irrigation purposes.

[1] https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html

c. Provide a list of raw materials, major intermediates, and final products handled at the facility.

Materials List

Raw Materials	Intermediate Products	Final Products
Contaminated Groundwater		Treated Groundwater
50% Hydrogen Peroxide (CAS #7722-84-1) in a 2,000 gallon tank		

Attachment: N/A

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, waste-disposal areas, and water intake structures.
- The location of each unit of the WWTP including the location of wastewater collection sumps, impoundments, outfalls, and sampling points, if significantly different from outfall locations.

Attachment: 6- Facility Map showing water intake, effluent sampling point, and outfall location

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion: Click to enter text.

f. Is/will the treatment facility/disposal site be located above the 100-year frequency flood level.

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain: FEMA Flood Maps 48029C039G and 48029C0555F, Latest Available Revision dated 9/29/2010

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are used/proposed to prevent flooding (including tail water and rainfall run-on controls) of the treatment facility and disposal area: Click to enter text.

Attachment: Click to enter text.

g. For **new** or **major amendment** permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☐ Yes ☐ No ☒ N/A (renewal only)

h. If **yes** to Item 1.g, has the applicant applied for a USACE CWA Chapter 404 Dredge and Fill permit?

☐ Yes ☐ No

If **yes**, provide the permit number: Click to enter text.

If **no**, provide an approximate date of application submittal to the USACE: Click to enter text.

2. TREATMENT SYSTEM (Instructions, Page 35)

a. List any physical, chemical, or biological treatment process(es) used/proposed to treat wastewater at this facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

The contaminated groundwater entering the groundwater treatment system contains chlorinated volatile organic compounds (primarily trichloroethene, cis-1,2-dichloroethene, and vinyl chloride). Groundwater recovered from Zones 1, 2, and 3 recovery wells flows into two concrete basins (1500/1600 Basins) before being pumped through multimedia filters to remove suspended solids. Effluent from the multimedia filters is pumped to 4400 Basin which is then processed through an ultraviolet/oxidation (UV/OX) treatment system to remove VOCs by oxidation. After the UV/OX treatment, the water is pumped through granular activated carbon (GAC) polishing filters as the final treatment process before discharge into an effluent holding tank prior to discharge into either Leon Creek via Outfall 001 or to a holding tank that supplies water to irrigate Zone 1 landfills located in JBSA-Lackland.

b. Attach a flow schematic **with a water balance** showing all sources of water and wastewater flow into the facility, wastewater flow into and from each treatment unit, and wastewater flow to each outfall/point of disposal.

Attachment: 6 includes Process Flow Diagrams and a water balance description

3. IMPOUNDMENTS (Instructions, Pages 35-37)

Does the facility use or plan to use any wastewater impoundments (e.g., lagoons or ponds?)

☐ Yes ☒ No

If **no**, proceed to Item 4. If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a - 3.e** for **new or proposed** impoundments. **NOTE:** See instructions, Pages 35-37, for additional information on the attachments required by Items 3.a – 3.e.

a. Complete the table with the following information for each existing, new, or proposed impoundment:

Use Designation: Indicate the use designation for each impoundment as Treatment (**T**), Disposal (**D**), Containment (**C**), or Evaporation (**E**).

Associated Outfall Number: Provide an outfall number if a discharge occurs or will occur.

Liner Type: Indicate the liner type as Compacted clay liner (**C**), In-situ clay liner (**I**), Synthetic/plastic/rubber liner (**S**), or Alternate liner (**A**). **NOTE:** See instructions for further detail on liner specifications. If an alternate liner (A) is selected, include an attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Leak Detection System: If any leak detection systems are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no.

Groundwater Monitoring Wells and Data: If groundwater monitoring wells are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no. Attach any existing groundwater monitoring data.

Dimensions: Provide the dimensions, freeboard, surface area, storage capacity of the impoundments, and the maximum depth (not including freeboard). For impoundments with irregular shapes, submit surface area instead of length and width.

Compliance with 40 CFR Part 257, Subpart D: If the impoundment is required to be in compliance with 40 CFR Part 257, Subpart D, enter **Y** for yes. Otherwise, enter **N** for no.

Date of Construction: Enter the date construction of the impoundment commenced (mm/dd/yy).

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) (S) or (A)				
Alt. Liner Attachment Reference				
Leak Detection System, Y/N				
Groundwater Monitoring Wells, Y/N				
Groundwater Monitoring Data Attachment				
Pond Bottom Located Above The Seasonal High-Water Table, Y/N				
Length (ft)				
Width (ft)				
Max Depth From Water Surface (ft), Not Including Freeboard				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
40 CFR Part 257, Subpart D, Y/N				
Date of Construction				

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) (S) or (A)				
Alt. Liner Attachment Reference				
Leak Detection System, Y/N				
Groundwater Monitoring Wells, Y/N				
Groundwater Monitoring Data Attachment				
Pond Bottom Located Above The Seasonal High-Water Table, Y/N				
Length (ft)				
Width (ft)				
Max Depth From Water Surface (ft), not including freeboard				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
40 CFR Part 257, Subpart D, Y/N				
Date of Construction				

Attachment: Click to enter text.

The following information (**Items 3.b – 3.e**) is required only for **new or proposed** impoundments.

b. For new or proposed impoundments, attach any available information on the following items. If attached, check **yes** in the appropriate box. Otherwise, check **no** or **not yet designed**.

i. Liner data

☐ Yes ☐ No ☐ Not yet designed

ii. Leak detection system or groundwater monitoring data

☐ Yes ☐ No ☐ Not yet designed

iii. Groundwater impacts

☐ Yes ☐ No ☐ Not yet designed

NOTE: Item b.iii is required if the bottom of the pond is not above the seasonal high-water table in the shallowest water-bearing zone.

Attachment: Click to enter text.

For TLAP applications: Items 3.c – 3.e are **not required**, continue to Item 4.

c. Attach a USGS map or a color copy of original quality and scale which accurately locates and identifies all known water supply wells and monitor wells within ½-mile of the impoundments.

Attachment: Click to enter text.

d. Attach copies of State Water Well Reports (e.g., driller's logs, completion data, etc.), and data on depths to groundwater for all known water supply wells including a description of how the depths to groundwater were obtained.

Attachment: Click to enter text.

e. Attach information pertaining to the groundwater, soils, geology, pond liner, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: Click to enter text.

4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, Pages 38-39)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations and for each point of disposal for TLAP operations.

If there are more outfalls/points of disposal at the facility than the spaces provided, copies of pages 6 and/0r numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.

For TLAP applications: Indicate the disposal method and each individual irrigation area **I**, evaporation pond **E**, or subsurface drainage system **S** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for **Outfall** number (e.g. **E1** for evaporation pond 1, **I2** for irrigation area No. 2, etc.).

Outfall Latitude and Longitude

Outfall Number	Latitude-decimal degrees	Longitude-decimal degrees
001	29°21'40"	98°34'44"

Outfall Location Description

Outfall Number	Location Description
001	Point of discharge is at the 29.4km mark on Lower Leon Creek

Description of Sampling Points (if different from Outfall location)

Outfall Number	Description of Sampling Point
001	Sample Location 29°21'46", 98°34'42" at the sampling port on the effluent line before the outfall

Outfall Flow Information – Permitted and Proposed

Outfall Number	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)
001	1.0	1.5	1.0	1.0	Ongoing

Outfall Discharge – Method and Measurement

Outfall Number	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Y	N	Flow meter on pipe

Outfall Discharge – Flow Characteristics

Outfall Number	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	N	Y	N	24	31	12

Wastestream Contributions

Outfall No.: 001

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Groundwater from Zone 1	0.04	25
Groundwater from Zone 2	0.001	1
Groundwater from Zone 3	0.12	74

Outfall No.: Click to enter text.

Contributing Wastestreams	Volume (MGD)	% of Total Flow

Outfall No.: Click to enter text.

Contributing Wastestreams	Volume (MGD)	% of Total Flow

Attachment: Click to enter text.

5. BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES (Instructions, Page 39)

a. Does the facility use/propose to use any cooling towers which discharge blowdown or other wastestreams to the outfall(s)?

☐ Yes ☒ No

NOTE: If the facility uses or plans to use cooling towers, Item 12 **is required**.

b. Does the facility use or plan to use any boilers that discharge blowdown or other wastestreams to the outfall(s)?

☐ Yes ☒ No

c. Does or will the facility discharge once-through cooling water to the outfall(s)?

☐ Yes ☒ No

NOTE: If the facility uses or plans to use once-through cooling water, Item 12 **is required**.

d. If **yes** to Items 5.a, 5.b, **or** 5.c, attach the SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product or active ingredient, as appropriate, in wastestream.

Attach a summary of this information in addition to the submittal of the SDS for each specific wastestream and the associated chemical additives and specify which outfalls are affected.

Attachment: N/A

e. Cooling Towers and Boilers

If **yes** to either Item 5.a **or** 5.b, complete the following table.

Cooling Towers and Boilers

Type of Unit	Number of Units	Dly Avg Blowdown (gallons/day)	Dly Max Blowdown (gallons/day)
Cooling Towers			
Boilers			

6. STORMWATER MANAGEMENT (Instructions, Pages 39-40)

Are there any existing/proposed outfalls which discharge stormwater associated with industrial activities, as defined at *40 CFR § 122.26(b)(14)*, commingled with any other wastestream?

☐ Yes ☒ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in some manner which may result in exposure of the activities or materials to stormwater: Click to enter text.

7. DOMESTIC SEWAGE, SEWAGE SLUDGE, AND SEPTAGE MANAGEMENT AND DISPOSAL (Instructions, Page 40)

a. Check the box next to the appropriate method of domestic sewage and domestic sewage sludge treatment or disposal. Complete Worksheet 5.0 or Item 7.b if directed to do so.

☒ Domestic sewage is routed (i.e., connected to or transported to) to a WWTP permitted to receive domestic sewage for treatment, disposal, or both. **Complete Item 7.b**.

☐ Domestic sewage is disposed of by an on-site septic tank and drainfield system. **Complete Item 7.b**.

☐ Domestic and industrial treatment sludge **ARE commingled** prior to use or disposal.

☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge **IS NOT commingled** prior to sludge use or disposal. **Complete Worksheet 5.0**.

☐ Facility is a POTW. **Complete Worksheet 5.0**.

☐ Domestic sewage is not generated on-site.

☐ Other (e.g., portable toilets), specify and **Complete Item 7.b**: Click to enter text.

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
Domestic sewage from the plant is routed to San Antonio Water System for treatment	

8. IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS (Instructions, Page 40)

a. Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☐ Yes ☒ No

b. Has the permittee completed or planned for any improvements or construction projects?

☐ Yes ☒ No

c. If **yes** to either 8.a **or** 8.b, provide a brief summary of the requirements and a status update: Click to enter text.

9. TOXICITY TESTING (Instructions, Page 41)

Have any biological tests for acute or chronic toxicity been made on any of the discharges or on a receiving water in relation to the discharge within the last three years?

☒ Yes ☐ No

If **yes**, identify the tests and describe their purposes: As required by the permit – Daphnia pulex (acute & chronic); Pimephales promelas (acute and chronic)

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA.

Attachment: N/A, samples collected in late July 2019 and results will be available for submittal in Sep 2019 DMR

10. OFF-SITE/THIRD PARTY WASTES (Instructions, Page 41)

a. Does or will the facility receive wastes from off-site sources for treatment at the facility, disposal on-site via land application, or discharge via a permitted outfall?

☐ Yes ☒ No

If **no**, proceed to Item 11. If **yes**, provide responses to Items 10.b through 10.d below.

b. Attach the following information to the application:

- List of wastes received (including volumes, characterization, and capability with on-site wastes).
- Identify the sources of wastes received (including the legal name and addresses of the generators).
- Description of the relationship of waste source(s) with the facility's activities.

Attachment: Click to enter text.

c. Is or will wastewater from another TCEQ, NPDES, or TPDES permitted facility commingled with this facility's wastewater after final treatment and prior to discharge via the final outfall/point of disposal?

☐ Yes ☐ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment: Click to enter text.

d. Is this facility a POTW that accepts/will accept process wastewater from any SIU and has/is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☐ No

If **yes**, **Worksheet 6.0** of this application **is required**.

11. RADIOACTIVE MATERIALS (Instructions, Pages 41-42)

a. Are/will radioactive materials be mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L.

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material	Concentration (pCi/L)

Radioactive Material	Concentration (pCi/L)

b. Does the applicant or anyone at the facility have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L. Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material	Concentration (pCi/L)

12. COOLING WATER (Instructions, Pages 42-43)

a. Does the facility use or propose to use water for cooling purposes?

☐ Yes ☒ No

If **no**, stop here. If **yes**, complete Items 12.b thru 12.f.

b. Cooling water is/will be obtained from a groundwater source (e.g., on-site well).

☐ Yes ☐ No

If **yes**, stop here. If **no**, continue.

c. Cooling Water Supplier

i. Provide the name of the owner(s) and operator(s) for the CWIS that supplies or will supply water for cooling purposes to the facility.

Cooling Water Intake Structure(s) Owner(s) and Operator(s)

CWIS ID				
Owner				
Operator				

ii. Cooling water is/will be obtained from a Public Water Supplier (PWS)

☐ Yes ☐ No

If **no**, continue. If **yes**, provide the PWS Registration No. and stop here: Click to enter text.

iii. Cooling water is/will be obtained from an Independent Supplier

☐ Yes ☐ No

If **no**, proceed to Item 12.d. If **yes,** contact the Industrial Permits Team to determine what application materials are required. Attach copies of the correspondence with the TCEQ and any required application materials, as stipulated in the correspondence with the TCEQ.

Attachment: Click to enter text.

d. 316(b) General Criteria

i. The CWIS(s) have or will have a cumulative design intake flow of 2 MGD or greater

☐ Yes ☐ No

ii. At least 25% of the total water withdrawn by the CWIS is/will be used exclusively for cooling purposes on an annual average basis

☐ Yes ☐ No

iii. The facility withdraws/proposes to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*.

☐ Yes ☐ No

If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2*: Click to enter text.

If **yes** to all three questions in Item 12.d, the facility is subject to 316(b). Proceed to Item 12.f.

If **no** to any of the questions in Item 12.d, the facility does not meet the minimum criteria to be subject to the full requirements of 316(b). Proceed to Item 12.e.

e. The facility is **not subject** to 316(b) **and uses/proposes to use cooling towers**.

☐ Yes ☐ No

If **yes**, stop here. If **no**, complete Worksheet 11.0, Items 1(a), 1(b)(i-iii) and (vi), 2(b)(i), and 3(a) to allow for a determination based upon BPJ.

f. Phase I vs Phase II Facilities

i. Existing facility (Phase II)

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable. Otherwise, continue.

ii. New Facility – (Phase I)

☐ Yes ☐ No

If **yes**, check the box next to the facility's compliance track selection, attach the requested information, and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2:

☐ Track I - AIF greater than 2 MGD, but less than 10 MGD
- Attach information required by *40 CFR §§ 125.86(b)(2)-(4)*.

☐ Track I - AIF greater than 10 MGD
- Attach information required by *40 CFR § 125.86(b)*.

☐ Track II
- Attach information required by *40 CFR § 125.86(c)*.

Attachment: Click to enter text.

NOTE: Item 13 is required only for existing permitted facilities.

13. PERMIT CHANGE REQUESTS (Instructions, Pages 43-44)

a. Is the facility requesting a **major amendment** of an existing permit?

☐ Yes ☒ No

If **yes**, list each request individually and provide the following information: 1) detailed information regarding the scope of each request and 2) a justification for each request. Attach any supplemental information or additional data to support each request.

Click to enter text.

b. Is the facility requesting any **minor amendments** to the permit?

☐ Yes ☒ No

If **yes**, list and discuss the requested changes.

Click to enter text.

c. Is the facility requesting any **minor modifications** to the permit?

☒ Yes ☐ No

If **yes**, list and discuss the requested changes.

Two outfalls, 003 and 004, associated with Zone 4 and Site S-1, respectively, and irrigation areas associated with Site S-1 are being removed from the permit because discharge has ceased. TCEQ approved the decommissioning/dismantling of the associated groundwater treatment facilities at Zone 4 (Outfall 003) and Site S-1 (Outfall 004). Copies of the approval letters have been included as Attachment 7.

WORKSHEET 1.0
EPA CATEGORICAL EFFLUENT GUIDELINES

This worksheet **is required** for all applications for TPDES permits for discharges of wastewaters subject to EPA categorical effluent limitation guidelines (ELGs).

1. CATEGORICAL INDUSTRIES (Instructions, Pages 47-48)

Is this facility subject to any of the 40 CFR categorical ELGs outlined on page 52 of the instructions?

☐ Yes ☒ No

If **no**, this worksheet is not required. If **yes**, provide the appropriate information in the table below.

40 CFR Effluent Guidelines

Industry	40 CFR Part

2. PRODUCTION/PROCESS DATA (Instructions, Page 48)

a. Production Data

Provide the appropriate data for effluent guidelines with production-based effluent limitations.

Production Data

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units

b. Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Data (40 CFR Part 414)

Provide each applicable subpart and the percent of total production. Provide data for metal-bearing and cyanide-bearing wastestreams, as required by *40 CFR Part 414, Appendices A and B*.

Percentages of Total Production

Subcategory	Percent of Total Production	Appendix A and B - Metal	Appendix A – Cyanide

c. **Refineries (40 CFR Part 419)**

Provide the applicable subcategory and a brief justification.

Click to enter text

3. PROCESS/NON-PROCESS WASTEWATER FLOWS (Instructions, Page 48)

Provide a breakdown of wastewater flow(s) generated by the facility, including both process and non-process wastewater flow(s). Specify which wastewater flows are to be authorized for discharge under this permit and the disposal practices for wastewater flows, excluding domestic, which are not to be authorized for discharge under this permit.

Click to enter text

4. NEW SOURCE DETERMINATION (Instructions, Page 48)

Provide a list of all wastewater-generating processes subject to EPA categorical ELGs, identify the appropriate guideline Part and Subpart, and provide the date the process/construction commenced.

Wastewater-generating Processes Subject to Effluent Guidelines

Process	EPA Guideline: Part	EPA Guideline: Subpart	Date Process/ Construction Commenced

WORKSHEET 2.0
POLLUTANT ANALYSES REQUIREMENTS

Worksheet 2.0 **is required** for all applications submitted for a TPDES permit. Worksheet 2.0 is not required for applications for a permit to dispose of all wastewater by land disposal or for discharges solely of stormwater associated with industrial activities.

1. LABORATORY ACCREDITATION (Instructions, Page 49)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:
   i. periodically inspected by the TCEQ; or
   ii. located in another state and is accredited or inspected by that state; or
   iii. performing work for another company with a unit located in the same site; or
   iv. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

Review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of approved signatories.

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

Paul F Carroll

(Signature)

2. GENERAL TESTING REQUIREMENTS (Instructions, Pages 49-51)

a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): Samples 1 through 4 collected on 5/1/2019, 5/8/2019, 5/17/2019, and 5/22/2019

b. ☒ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.

c. Read the general testing requirements in the instructions for important information about sampling, test methods, and MALs. If a contact laboratory was used, attach a list which includes the name, contact information, and pollutants analyzed for each laboratory/firm. **Attachment:** N/A

3. SPECIFIC TESTING REQUIREMENTS (Instructions, Pages 51-62)

Attach correspondence from TCEQ approving submittal of less than the required number of samples, if applicable. **Attachment:** N/A

TABLE 1 and TABLE 2 (Instructions, Page 50)

Completion of Tables 1 and 2 **is required** for **all external outfalls** for all TPDES permit applications.

Table 1 for Outfall No.: 001 (Note: See Table 14 for data qualifier definitions.)

Samples are (check one): ☐ **Composite** ☒ **Grab**

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)	<2	<2	<2	<2
CBOD (5-day)	<2	<2	<2	<2
Chemical oxygen demand	<5	5.87 J	<5	<5
Total organic carbon	1.8	1.3	1.5	1.7
Dissolved oxygen	7.94	4.58	6.1	4
Ammonia nitrogen	<0.1	<0.1	0.077 J	<0.1
Total suspended solids	<4	<4	<4	<4
Nitrate nitrogen	0.68	0.69	0.76	0.62
Total organic nitrogen	0.29	0.22	0.173	0.23
Total phosphorus	<0.025	0.028 J	0.02 J	<0.025
Oil and grease	<2.5	<2.5	<2.5	<2.5
Total residual chlorine	<0.05	<0.05	<0.05	<0.05
Total dissolved solids	404	408	377	382
Sulfate	25	27.3	29	31.2
Chloride	28.8	27.3	28	27.8
Fluoride	0.57	<0.2	<0.2	0.41
Total alkalinity (mg/L as CaCO3)	309	291	293	295
Temperature (°F)	20.39	24.57	26.27	26.11
pH (standard units)	7.39	6.67	7.4	6.34

Table 2 for Outfall No.: 001 (Note: See Table 14 for data qualifier definitions.)

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total	20	14	13	20	2.5
Antimony, total	1.7 J	<5	0.16 J	0.71 J	5
Arsenic, total	4.6 J	3.6 J	3.2 J	3.3 J	0.5
Barium, total	220	220	220	230	3
Beryllium, total	0.38 J	<2	<2	0.067 J	0.5
Cadmium, total	0.38 J	<2	<2	0.061 J	1
Chromium, total	1.8 J	<5	<5	<5	3
Chromium, hexavalent	<10	<10	<10	<10	3
Chromium, trivalent	0.27 J	<5	<5	<5	N/A
Copper, total	1.4	<5	<5	<5	2
Cyanide, available	<2.5	<2.5	<2.5	<2.5	2/10
Lead, total	2.9 J	<5	<5	<5	0.5
Mercury, total	0.00046 J	0.00029 J	0.0003 J	<0.0005	0.005/0.0005
Nickel, total	3.8 J	3.9 J	3.5 J	4.2 J	2
Selenium, total	1.1 J	<5	0.59 J	0.66 J	5

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Silver, total	0.89 J	<5	<5	<5	0.5
Thallium, total	0.59 J	<5	<5	0.15 J	0.5
Zinc, total	<10	<10	<10	<10	5.0

TABLE 3 (Instructions, Page 50)

Completion of Table 3 **is required** for all **external outfalls** which discharge process wastewater.

Partial completion of Table 3 **is required** for all **external outfalls** which discharge non-process wastewater and stormwater associated with industrial activities commingled with other wastestreams (see instructions for additional guidance).

Table 3 for Outfall No.: 001 (Note: See Table 14 for data qualifier definitions.)

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Acrylonitrile	<2.5	<2.5	<2.5	<2.5	50
Anthracene	<0.1	<0.1	<0.1	<0.1	10
Benzene	<0.5	<0.25	<0.25	<0.25	10
Benzidine	<8	<8	<8	<8	50
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	5
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	5
Bis(2-chloroethyl)ether	<0.05	<0.05	<0.05	<0.05	10
Bis(2-ethylhexyl)phthalate	0.59	1.7	1.4	1.4	10
Bromodichloromethane [Dichlorobromomethane]	<0.5	<0.25	<0.25	<0.25	10
Bromoform	<0.5	<0.5	<0.5	<0.5	10
Carbon tetrachloride	<0.5	<0.5	<0.5	<0.5	2
Chlorobenzene	<0.5	<0.25	<0.25	<0.25	10
Chlorodibromomethane [Dibromochloromethane]	<0.5	<0.5	<0.5	<0.5	10
Chloroform	<0.5	<0.5	<0.5	<0.5	10
Chrysene	<0.1	<0.1	<0.1	<0.1	5
m-Cresol [3-Methylphenol] *NOTE: Reported by laboratory as 3,4 Methylphenol*	<8	<8	<8	<8	10
o-Cresol [2-Methylphenol]	<8	<8	<8	<8	10
p-Cresol [4-Methylphenol] *See NOTE above*					10
1,2-Dibromoethane	<0.5	<0.5	<0.5	<0.5	10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<0.5	<0.5	<0.5	<0.5	10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<0.5	<0.25	<0.25	<0.25	10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<0.5	<0.5	<0.5	<0.5	10
3,3'-Dichlorobenzidine	<8	<8	<8	<8	5
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
1,1-Dichloroethene [1,1-Dichloroethylene]	<0.5	<0.5	<0.5	<0.5	10
Dichloromethane [Methylene chloride]	<0.5	<0.75	<0.75	<0.75	20
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	10
1,3-Dichloropropene – [1,3-Dichloropropylene]	<0.5	<0.5	<0.5	<0.5	10
2,4-Dimethylphenol	<8	<8	<8	<8	10
Di-n-Butyl phthalate	<8	<8	<8	<8	10
Ethylbenzene	<0.5	<0.25	<0.25	<0.25	10
Fluoride	0.57	<0.2	<0.2	0.41	500
Hexachlorobenzene	<8	<8	<8	<8	5
Hexachlorobutadiene	<8	<8	<8	<8	10
Hexachlorocyclopentadiene	<8	<8	<8	<8	10
Hexachloroethane	<8	<8	<8	<8	20
Methyl ethyl ketone	<2.5	<2.5	<2.5	<2.5	50
Nitrobenzene	<8	<8	<8	<8	10
N-Nitrosodiethylamine	ND	ND	ND	ND	20
N-Nitroso-di-n-butylamine	ND	ND	ND	ND	20
Nonylphenol	<5.05	<5	<5	<5	333
Pentachlorobenzene	ND	ND	ND	ND	20
Pentachlorophenol	<0.2	<0.2	<0.2	<0.2	5
Phenanthrene	<0.1	0.11	<0.1	<0.1	10
Polychlorinated biphenyls (PCBs) (**)	<0.4	<0.4	<0.4	<0.4	0.2
Pyridine	<8	<8	<8	<8	20
1,2,4,5-Tetrachlorobenzene	<8	<8	<8	<8	20
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	10
Tetrachloroethene [Tetrachloroethylene]	<0.5	<0.5	<0.5	<0.5	10
Toluene	<0.5	<0.25	<0.25	<0.25	10
1,1,1-Trichloroethane	<0.5	<0.25	<0.25	<0.25	10
1,1,2-Trichloroethane	<0.5	<0.25	<0.25	<0.25	10
Trichloroethene [Trichloroethylene]	<0.5	<0.75	<0.75	<0.75	10
2,4,5-Trichlorophenol	<8	<8	<8	<8	50
TTHM (Total trihalomethanes)	<0.5	<0.5	<0.5	<0.5	10
Vinyl chloride	<0.5	<0.5	<0.5	<0.5	10

(*) Indicate units if different from µg/L.

(**) Total of detects for PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, and PCB-1016. If all non-detects, enter the highest non-detect preceded by a "<".

TABLE 4 (Instructions, Pages 50-51)

Partial completion of Table 4 **is required** for each **external outfall** based on the conditions below.

a. Tributyltin

Is this facility an industrial/commercial facility which currently or proposes to directly dispose of wastewater from the types of operations listed below or a domestic facility which currently or proposes to receive wastewater from the types of industrial/commercial operations listed below?

☐ Yes ☒ No

If **yes**, check the box next to each of the following criteria which apply and provide the appropriate testing results in Table 4 below (check all that apply).

☐ Manufacturers and formulators of tributyltin or related compounds.

☐ Painting of ships, boats and marine structures.

☐ Ship and boat building and repairing.

☐ Ship and boat cleaning, salvage, wrecking and scaling.

☐ Operation and maintenance of marine cargo handling facilities and marinas.

☐ Facilities engaged in wood preserving.

☐ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. Enterococci (discharge to saltwater)

i. This facility discharges/proposes to discharge directly into saltwater receiving waters **and** Enterococci bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☒ No

ii. Domestic wastewater is/will be discharged.

☐ Yes ☒ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

c. E. coli (discharge to freshwater)

i. This facility discharges/proposes to discharge directly into freshwater receiving waters **and** *E. coli* bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☒ No

ii. Domestic wastewater is/will be discharged.

☐ Yes ☒ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

Table 4 for Outfall No.:N/A

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1	Sample 2	Sample 3	Sample 4	MAL
Tributyltin (µg/L)					0.010
Enterococci (cfu or MPN/100 mL)					N/A
E. coli (cfu or MPN/100 mL)					N/A

TABLE 5 (Instructions, Page 51)

Completion of Table 5 **is required** for all **external outfalls** which discharge process wastewater from a facility which manufactures or formulates pesticides or herbicides or other wastewaters which may contain pesticides or herbicides.

If this facility does not/will not manufacture or formulate pesticides or herbicides and does not/will not discharge other wastewaters which may contain pesticides or herbicides, check N/A.

☒ N/A

Table 5 for Outfall No.: Click to enter text.

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Aldrin					0.01
Carbaryl					5
Chlordane					0.2
Chlorpyrifos					0.05
4,4'-DDD					0.1
4,4'-DDE					0.1
4,4'-DDT					0.02
2,4-D					0.7
Danitol [Fenpropathrin]					—
Demeton					0.20
Diazinon					0.5/0.1
Dicofol [Kelthane]					1
Dieldrin					0.02
Diuron					0.090
Endosulfan I (*alpha*)					0.01
Endosulfan II (*beta*)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (*alpha*)					0.05
Hexachlorocyclohexane (*beta*)					0.05
Hexachlorocyclohexane (*gamma*) [Lindane]					0.05
Hexachlorophene					10
Malathion					0.1
Methoxychlor					2.0
Mirex					0.02
Parathion (ethyl)					0.1
Toxaphene					0.3
2,4,5-TP [Silvex]					0.3

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 52)

Completion of Table 6 **is required** for all **external outfalls**.

Table 6 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutants	Believed Present	Believed Absent	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	MAL (µg/L)*
Bromide	☐	☒					400
Color (PCU)	☐	☒					—
Nitrate-Nitrite (as N)	☐	☒					—
Sulfide (as S)	☐	☒					—
Sulfite (as SO3)	☐	☒					—
Surfactants	☐	☒					—
Boron, total	☐	☒					20
Cobalt, total	☐	☒					0.3
Iron, total	☐	☒					7
Magnesium, total	☐	☒					20
Manganese, total	☐	☒					0.5
Molybdenum, total	☐	☒					1
Tin, total	☐	☒					5
Titanium, total	☐	☒					30

* Indicate units if different from µg/L.

TABLE 7 (Instructions, Page 52)

Check the box next to any of the industrial categories applicable to this facility. If no categories are applicable, check N/A. If GC/MS testing is required, check the box provided to confirm the testing results for the appropriate parameters are provided with the application.

☒ N/A

Table 7 for Applicable Industrial Categories

Industrial Category	40 CFR Part	Volatiles Table 8	Acids Table 9	Bases/Neutrals Table 10	Pesticides Table 11
☐ Adhesives and Sealants		☐ Yes	☐ Yes	☐ Yes	No
☐ Aluminum Forming	467	☐ Yes	☐ Yes	☐ Yes	No
☐ Auto and Other Laundries		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Battery Manufacturing	461	☐ Yes	No	☐ Yes	No
☐ Coal Mining	434	No	No	No	No
☐ Coil Coating	465	☐ Yes	☐ Yes	☐ Yes	No
☐ Copper Forming	468	☐ Yes	☐ Yes	☐ Yes	No
☐ Electric and Electronic Components	469	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Electroplating	413	☐ Yes	☐ Yes	☐ Yes	No
☐ Explosives Manufacturing	457	No	☐ Yes	☐ Yes	No
☐ Foundries		☐ Yes	☐ Yes	☐ Yes	No
☐ Gum and Wood Chemicals - Subparts A,B,C,E	454	☐ Yes	☐ Yes	No	No
☐ Gum and Wood Chemicals - Subparts D,F	454	☐ Yes	☐ Yes	☐ Yes	No
☐ Inorganic Chemicals Manufacturing	415	☐ Yes	☐ Yes	☐ Yes	No
☐ Iron and Steel Manufacturing	420	☐ Yes	☐ Yes	☐ Yes	No
☐ Leather Tanning and Finishing	425	☐ Yes	☐ Yes	☐ Yes	No
☐ Mechanical Products Manufacturing		☐ Yes	☐ Yes	☐ Yes	No
☐ Nonferrous Metals Manufacturing	421,471	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Ore Mining - Subpart B	440	No	☐ Yes	No	No
☐ Organic Chemicals Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Paint and Ink Formulation	446,447	☐ Yes	☐ Yes	☐ Yes	No
☐ Pesticides	455	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Petroleum Refining	419	☐ Yes	No	No	No
☐ Pharmaceutical Preparations	439	☐ Yes	☐ Yes	☐ Yes	No
☐ Photographic Equipment and Supplies	459	☐ Yes	☐ Yes	☐ Yes	No
☐ Plastic and Synthetic Materials Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Plastic Processing	463	☐ Yes	No	No	No
☐ Porcelain Enameling	466	No	No	No	No
☐ Printing and Publishing		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Pulp and Paperboard Mills - Subpart C	430	☐ *	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subparts F, K	430	☐ *	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	☐ Yes	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts I, J, L	430	☐ Yes	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subpart E	430	☐ Yes	☐ Yes	☐ Yes	☐ *
☐ Rubber Processing	428	☐ Yes	☐ Yes	☐ Yes	No
☐ Soap and Detergent Manufacturing	417	☐ Yes	☐ Yes	☐ Yes	No
☐ Steam Electric Power Plants	423	☐ Yes	☐ Yes	No	No
☐ Textile Mills (Not Subpart C)	410	☐ Yes	☐ Yes	☐ Yes	No
☐ Timber Products Processing	429	☐ Yes	☐ Yes	☐ Yes	☐ Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Page 52)

Completion of Tables 8, 9, 10, and 11 **is required** as specified in Table 7 for all **external outfalls** that contain process wastewater.

Completion of Tables 8, 9, 10, and 11 **may be required** for types of industry not specified in Table 7 for specific parameters that are believed to be present in the wastewater.

Table 8 for Outfall No.: N/A : Volatile Compounds

Samples are (check one): ☐ Composites ☐ Grabs

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acrolein					50
Acrylonitrile					50
Benzene					10
Bromoform					10
Carbon tetrachloride					2
Chlorobenzene					10
Chlorodibromomethane					10
Chloroethane					50
2-Chloroethylvinyl ether					10
Chloroform					10
Dichlorobromomethane [Bromodichloromethane]					10
1,1-Dichloroethane					10
1,2-Dichloroethane					10
1,1-Dichloroethylene [1,1-Dichloroethene]					10
1,2-Dichloropropane					10
1,3-Dichloropropylene [1,3-Dichloropropene]					10
Ethylbenzene					10
Methyl bromide [Bromomethane]					50
Methyl chloride [Chloromethane]					50
Methylene chloride [Dichloromethane]					20
1,1,2,2-Tetrachloroethane					10
Tetrachloroethylene [Tetrachloroethene]					10
Toluene					10
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]					10
1,1,1-Trichloroethane					10
1,1,2-Trichloroethane					10
Trichloroethylene [Trichloroethene]					10
Vinyl chloride					10

* Indicate units if different from µg/L.

Table 9 for Outfall No.: N/A : Acid Compounds

Samples are (check one): ☐ Composites ☐ Grabs

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
2-Chlorophenol					10
2,4-Dichlorophenol					10
2,4-Dimethylphenol					10
4,6-Dinitro-o-cresol					50
2,4-Dinitrophenol					50
2-Nitrophenol					20
4-Nitrophenol					50
p-Chloro-m-cresol					10
Pentachlorophenol					5
Phenol					10
2,4,6-Trichlorophenol					10

* Indicate units if different from µg/L.

Table 10 for Outfall No.: N/A : Base/Neutral Compounds

Samples are (check one): ☐ Composites ☐ Grabs

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acenaphthene					10
Acenaphthylene					10
Anthracene					10
Benzidine					50
Benzo(a)anthracene					5
Benzo(a)pyrene					5
3,4-Benzofluoranthene [Benzo(b)fluoranthene]					10
Benzo(ghi)perylene					20
Benzo(k)fluoranthene					5
Bis(2-chloroethoxy)methane					10
Bis(2-chloroethyl)ether					10
Bis(2-chloroisopropyl)ether					10
Bis(2-ethylhexyl)phthalate					10
4-Bromophenyl phenyl ether					10
Butylbenzyl phthalate					10
2-Chloronaphthalene					10
4-Chlorophenyl phenyl ether					10
Chrysene					5
Dibenzo(a,h)anthracene					5
1,2-Dichlorobenzene [o-Dichlorobenzene]					10
1,3-Dichlorobenzene [m-Dichlorobenzene]					10
1,4-Dichlorobenzene [p-Dichlorobenzene]					10
3,3'-Dichlorobenzidine					5

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Diethyl phthalate					10
Dimethyl phthalate					10
Di-n-butyl phthalate					10
2,4-Dinitrotoluene					10
2,6-Dinitrotoluene					10
Di-n-octyl phthalate					10
1,2-Diphenylhydrazine (as Azobenzene)					20
Fluoranthene					10
Fluorene					10
Hexachlorobenzene					5
Hexachlorobutadiene					10
Hexachlorocyclopentadiene					10
Hexachloroethane					20
Indeno(1,2,3-cd)pyrene					5
Isophorone					10
Naphthalene					10
Nitrobenzene					10
N-Nitrosodimethylamine					50
N-Nitrosodi-n-propylamine					20
N-Nitrosodiphenylamine					20
Phenanthrene					10
Pyrene					10
1,2,4-Trichlorobenzene					10

* Indicate units if different from µg/L.

Table 11 for Outfall No.: N/A : Pesticides

Samples are (check one): ☐ Composites ☐ Grabs

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Aldrin					0.01
alpha-BHC [alpha-Hexachlorocyclohexane]					0.05
beta-BHC [beta-Hexachlorocyclohexane]					0.05
gamma-BHC [gamma-Hexachlorocyclohexane]					0.05
delta-BHC [delta-Hexachlorocyclohexane]					0.05
Chlordane					0.2
4,4'-DDT					0.02
4,4'-DDE					0.1
4,4'-DDD					0.1
Dieldrin					0.02
Endosulfan I (alpha)					0.01
Endosulfan II (beta)					0.02
Endosulfan sulfate					0.1

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Endrin					0.02
Endrin aldehyde					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
PCB 1242					0.2
PCB 1254					0.2
PCB 1221					0.2
PCB 1232					0.2
PCB 1248					0.2
PCB 1260					0.2
PCB 1016					0.2
Toxaphene					0.3

* Indicate units if different from µg/L.

Attachment: N/A

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete of Table 12 **is required** for **external outfalls**, as directed below. (Instructions, Pages 53-54)

a. Indicate which compound(s) are manufactured or used at the facility and provide a brief description of the conditions of its/their presence at the facility (check all that apply).

- ☐ 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) CASRN 93-76-5
- ☐ 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5-TP) CASRN 93-72-1
- ☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon) CASRN 136-25-4
- ☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (Ronnel) CASRN 299-84-3
- ☐ 2,4,5-trichlorophenol (TCP) CASRN 95-95-4
- ☐ hexachlorophene (HCP) CASRN 70-30-4
- ☐ None of the above

Description: Click to enter text.

b. Does the applicant or anyone at the facility 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 the effluent proposed for discharge?

☐ Yes ☒ No

Description: Click to enter text.

If **yes** to either Items a **or** b, complete Table 12 as instructed.

Table 12 for Outfall No.: N/A

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					10
1,2,3,7,8-PeCDD	1.0					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	0.03					50
2,3,4,7,8-PeCDF	0.3					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

TABLE 13 (HAZARDOUS SUBSTANCES)

Complete Table 13 **is required** for all **external outfalls** as directed below. (Instructions, Page 54)

a. Are there any pollutants listed in the instructions (pages 55-62) believed present in the discharge?

☐ Yes ☒ No

b. Are there pollutants listed in Item 1.c. of Technical Report 1.0 which are believed present in the discharge and have not been analytically quantified elsewhere in this application?

☐ Yes ☒ No

If **yes** to either Items a **or** b, complete Table 13 as instructed.

Table 13 for Outfall No.: N/A

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	CASRN	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Analytical Method

WORKSHEET 3.0
LAND APPLICATION OF EFFLUENT

This worksheet is required for all applications for a permit to dispose of wastewater by land application.

1. TYPE OF DISPOSAL SYSTEM (Instructions, Page 63)

Check the box next to the type of land disposal requested by this application:

- ☒ Irrigation
- ☐ Evaporation
- ☐ Evapotranspiration beds
- ☐ Drip irrigation system
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☐ Surface application
- ☐ Other, specify: Click to enter text.

2. LAND APPLICATION AREA (Instructions, Page 63)

Land Application Area Information

Effluent Application (gallons/day)	Irrigation Acreage (acres)	Describe land use & indicate type(s) of crop(s)	Public Access? (Y/N)
As needed	68	Landfill cap with native grasses	N
As needed	90	Landfill cap with native grasses	N

3. ANNUAL CROPPING PLAN (Instructions, Page 63)

Attach the required cropping plan that includes each of the following:

- Cool and warm season plant species
- Breakdown of acreage and percent of total acreage for each crop
- Crop growing season
- Harvesting method/number of harvests
- Minimum/maximum harvest height
- Crop yield goals
- Soils map
- Nitrogen requirements per crop
- Additional fertilizer requirements
- Supplemental watering requirements
- Crop salt tolerances
- Justification for not removing existing vegetation to be irrigated

Attachment: 8

4. WELL AND MAP INFORMATION (Instructions, Page 64)

a. Check each box to confirm the required information is shown and labeled on the attached USGS map:

- ☒ The exact boundaries of the land application area
- ☒ On-site buildings
- ☒ Waste-disposal or treatment facilities
- ☒ Effluent storage and tailwater control facilities
- ☐ Buffer zones
- ☒ All surface waters in the state onsite and within 500 feet of the property boundaries
- ☒ All water wells within ½-mile of the disposal site, wastewater ponds, or property boundaries
- ☒ All springs and seeps onsite and within 500 feet of the property boundaries

Attachment: 3 – USGS Map

b. List and cross reference all water wells located on or within 500 feet of the disposal site, wastewater ponds, or property boundaries in the following table. Attach additional pages as necessary to include all of the wells.

Well and Map Information Table

Well ID	Well Use	Producing? Y/N/U	Open, cased, capped, or plugged?	Proposed Best Management Practice
None				

Attachment: N/A

c. Groundwater monitoring wells or lysimeters are/will be installed around the land application site or wastewater ponds.

☒ Yes ☐ No

If **yes**, provide the existing/proposed location of the monitoring wells or lysimeters on the site map attached for Item 4.a. Additionally, attach information on the depth of the wells or lysimeters, sampling schedule, and monitoring parameters for TCEQ review, possible modification, and approval.

Attachment: 9, Figures show the groundwater monitoring wells installed and monitored as part of RCRA Permit and Compliance Plan No. 50310.

d. Attach a short groundwater technical report using *30 TAC § 309.20(a)(4)* as guidance.

Attachment: The groundwater beneath the land application area was contaminated by prior operations and is being extracted for treatment as part of the cleanup remedy. The groundwater is monitored as part of RCRA Permit and Compliance Plan No. 50310. See Attachment 9 for groundwater technical report information.

5. SOIL MAP AND SOIL INFORMATION (Instructions, Page 65)

Check each box to confirm that the following information is attached:

a. ☒ USDA NRCS Soil Survey Map depicting the area to be used for land application with the locations identified by fields and crops

b. ☒ Breakdown of acreage and percent of total acreage for each soil type

c. ☒ Copies of laboratory soil analyses

Attachment: 8

6. LABORATORY ACCREDITATION CERTIFICATION (Instructions, Page 66)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:
   i. periodically inspected by the TCEQ; or
   ii. located in another state and is accredited or inspected by that state; or
   iii. performing work for another company with a unit located in the same site; or
   iv. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

Review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of approved signatories.

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

Paul F Carroll

(Signature)

7. EFFLUENT MONITORING DATA (Instructions, Page 66)

Completion of Table 14 **is required** for all **renewal** and **major amendment** applications. Complete the table with monitoring data for the previous two years for all parameters regulated in the current permit. An additional table has been provided with blank headers for parameters regulated in the current permit which are not listed in Table 14.

Table 14 for Site No.: 001 (Note: Data qualifier definitions provided at bottom of table in Attachment 10.)

Samples are (check one): ☒ **Composites** ☐ **Grabs**

Date (mo/yr)	Daily Avg Flow (gpd)	BOD_5 (mg/L)	TSS (mg/L)	Nitrogen (mg/L)	Conductivity (mmhos/cm)	Total acres irrigated	Hydraulic Application rate (acre-feet/month)
6/2017	4,304.0	<2	<4	N/A	N/A	0	
7/2017	2,821.9	<2	<4	N/A	N/A	2.4	71
8/2017	2,861.7	<2	<4	N/A	N/A	2.4	38
9/2017	2,496.4	<2	<4	N/A	N/A	2.4	67
10/2017	4,621.9	<2	<4	N/A	N/A	2.4	65
11/2017	4,711.0	<2	<4	N/A	N/A	2.4	88
12/2017	3,924.7	<2	<4	N/A	N/A	0	
1/2018	5,229.4	<2	<4	N/A	N/A	2.4	77
2/2018	6,351.2	<2	<4	N/A	N/A	0	
3/2018	4,914.2	<2	<4	N/A	N/A	0	
4/2018	5,505.2	<2	<4	N/A	N/A	0	
5/2018	4,670.5	<2	<4	N/A	N/A	0	
6/2018	4,387.0	<2	<4	N/A	N/A	2.4	45
7/2018	4,222.8	<2	<4	N/A	N/A	2.4	36
8/2018	4,706.0	<2	<4	N/A	N/A	2.4	30
9/2018	4,487.2	<2	<4	N/A	N/A	0	
10/2018	6,634.0	8.3	<4	N/A	N/A	0	
11/2018	6,598.0	<2	<4	N/A	N/A	2.4	133
12/2018	6,127.0	<2	<4	N/A	N/A	2.4	22
1/2019	6,386.9	<2	<4	N/A	N/A	0	
2/2019	6,055.1	<2	<4	N/A	N/A	2.4	88
3/2019	4,214.1	<2	<4	N/A	N/A	0	
4/2019	4,776.5	<2	<4	N/A	N/A	0	
5/2019	6,840.5	3.69	<4	N/A	N/A	0	

Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken.

Attachment: N/A

Use this table to provide effluent analysis for parameters regulated in the current permit which are not listed in Table 14.

Additional Parameter Effluent Analysis

Date (mo/yr)	See Attachment 10 for completed Table 14.						

Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken.

Attachment: N/A

8. POLLUTANT ANALYSIS (Instructions, Page 66)

a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): Samples 1 through 4 collected on 5/1/2019, 5/8/2019, 5/17/2019, and 5/22/2019 05/01/2019 – 05/22/2019

b. ☒ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.

c. Completion of Tables 15 and 16 **is required** for all applications for the authorization of land application.

See Table 14 Attachment 10 for data qualifier definitions.

Table 15 for Site No.: 001; Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)	<2	<2	<2	<2
CBOD (5-day)	<2	<2	<2	<2
Chemical oxygen demand	<5	5.87 J	<5	<5
Total organic carbon	1.8	1.3	1.5	1.7
Ammonia nitrogen	<0.1	<0.1	0.077 J	<0.1
Total suspended solids	<4	<4	<4	<4
Nitrate nitrogen	0.68	0.69	0.76	0.62
Total organic nitrogen	0.29	0.22	0.173	0.23
Total phosphorus	<0.025	0.028 J	0.02 J	<0.025
Oil and grease	<2.5	<2.5	<2.5	<2.5
Total residual chlorine	<0.05	<0.05	<0.05	<0.05
Total dissolved solids	404	408	377	382
Sulfate	25	27.3	29	31.2
Chloride	28.8	27.3	28	27.8
Fluoride	570	<200	<200	410
Fecal Coliform (cfu/100 mL)	<1	8.6	43.1	24.6
Specific conductance (mmhos/cm)	0.648	0.774	0.716	0.753
pH (standard units; min/max)	7.39	6.67	7.4	6.34
Soluble sodium	53	49	49	44
Soluble calcium	80	86	88	84
Soluble magnesium	12	11	11	11
SAR (unitless)	1.46	1.32	1.31	1.2

Table 16: for Site No.: 001; Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total	20	14	13	20	2.5
Antimony, total	1.7 J	<5	0.16 J	0.71 J	5
Arsenic, total	4.6 J	3.6 J	3.2 J	3.3 J	0.5
Barium, total	220	220	220	230	3
Beryllium, total	0.38 J	<2	<2	0.067 J	0.5
Boron, total	290	290 J	280	370	20
Cadmium, total	0.38 J	<2	<2	0.061 J	1
Chromium, total	1.8 J	<5	<5	<5	3
Chromium, hexavalent	<10	<10	<10	<10	3
Chromium, trivalent	0.27 J	<5	<5	<5	N/A
Copper, total	1.4 J	<5	<5	<5	2
Cyanide	<2.5	<2.5	<2.5	<2.5	2/10
Lead, total	2.9 J	<5	<5	<5	0.5
Mercury, total	0.00046 J	0.00029 J	0.0003 J	<0.0005	<0.0005
Nickel, total	3.8 J	3.9	3.5 J	4.2 J	2
Selenium, total	1.1 J	<5	0.59 J	0.66 J	5

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Silver, total	0.89 J	<5	<5	<5	0.5
Thallium, total	0.59 J	<5	<5	0.15 J	0.5
Zinc, total	<10	<10	<10	<10	5.0

WORKSHEET 3.1
SURFACE LAND APPLICATION AND EVAPORATION

This worksheet **is required** for all applications for a permit to dispose of wastewater by surface land application or evaporation.

1. EDWARDS AQUIFER (Instructions, Page 67)

a. Is the facility subject to *30 TAC Chapter 213*, Edwards Aquifer Rules?

☐ Yes ☒ No

If **no**, proceed to Item 2. If **yes**, complete Items 1.b **and** 1.c.

b. Check the box next to the subchapter applicable to the facility.

☐ *30 TAC Chapter 213, Subchapter A*

☐ *30 TAC Chapter 213, Subchapter B*

c. If *30 TAC Chapter 213, Subchapter A* applies, attach **either**: 1) a Geologic Assessment (if conducted in accordance with *30 TAC § 213.5*) **or** 2) a report that contains the following information:

- A description of the surface geological units within the proposed land application site and wastewater pond area.
- The location and extent of any sensitive recharge features in the land application site and wastewater pond area
- A list of any proposed BMPs to protect the recharge features.

Attachment: N/A

2. SURFACE SPRAY/IRRIGATION (Instructions, Page 67)

a. Provide the following information on the irrigation operations:

Area under irrigation (acres): 158

Design application rate (acre-ft/acre/yr): As needed

Design application frequency (hours/day): 8

Design application frequency (days/week): 3

Design total nitrogen loading rate (lbs nitrogen/acre/year): N/A

Average slope of the application area (percent): 2

Maximum slope of the application area (percent): 4

Irrigation efficiency (percent): 80

Effluent conductivity (mmhos/cm): Click to enter text.

Soil conductivity (mmhos/cm): Click to enter text.

Curve number: Click to enter text.

Describe the application method and equipment: Water Cannon

b. Attach a detailed engineering report which includes a water balance, storage volume calculations, and a nitrogen balance.

Attachment: 8

3. EVAPORATION PONDS (Instructions, Pages 68)

a. Daily average effluent flow into ponds: N/A gallons per day

b. Attach a separate engineering report of evaporation calculations for average long-term and worst-case critical conditions.

Attachment: N/A

4. EVAPOTRANSPIRATION BEDS (Instructions, Page 68)

a. Provide the following information on the evapotranspiration beds:

Number of beds: N/A

Area of bed(s) (acres): Click to enter text.

Depth of bed(s) (feet): Click to enter text.

Void ratio of soil in the beds: Click to enter text.

Storage volume within the beds (include units): Click to enter text.

Description of any lining to protect groundwater: Click to enter text.

b. Attach a certification by a licensed Texas professional engineer that the liner meets TCEQ requirements.

Attachment: N/A

c. Attach a separate engineering report with water balance, storage volume calculations, and description of the liner.

Attachment: N/A

5. OVERLAND FLOW (Instructions, Page 68)

a. Provide the following information on the overland flow:

Area used for application (acres): 0.75

Slopes for application area (percent): 1 - 2

Design application rate (gpm/foot of slope width): Click to enter text.

Slope length (feet): Click to enter text.

Design BOD_5 loading rate (lbs BOD_5/acre/day): Click to enter text.

Design application frequency (hours/day): Click to enter text.

Design application frequency (days/week): Click to enter text.

b. Attach a separate engineering report with the method of application and design requirements according to *30 TAC § 217.212*.

Attachment: 8

WORKSHEET 4.0
RECEIVING WATERS

This worksheet **is required** for all TPDES permit applications.

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 74)

a. There is a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge.

☐ Yes ☒ No

If **no**, stop here and proceed to Item 2. If **yes**, provide the following information:

i. The legal name of the owner of the drinking water supply intake: Click to enter text.

v. The distance and direction from the outfall to the drinking water supply intake: Click to enter text.

b. Locate and identify the intake on the USGS 7.5-minute topographic map provided for Administrative Report 1.0.

☐ Check this box to confirm the above requested information is provided.

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page 74)

If the discharge is to tidally influenced waters, complete this section. Otherwise, proceed to Item 3.

a. Width of the receiving water at the outfall: Click to enter text. feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☐ No

If **yes**, provide the distance and direction from the outfall(s) to the oyster reefs: Click to enter text.

c. Are there sea grasses within the vicinity of the point of discharge?

☐ Yes ☐ No

If **yes**, provide the distance and direction from the outfall(s) to the grasses: Click to enter text.

3. CLASSIFIED SEGMENT (Instructions, Page 74)

The discharge is/will be directly into (or within 300 feet of) a classified segment.

☒ Yes ☐ No

If **yes**, stop here. It is not necessary to complete Items 4 and 5 of this worksheet or Worksheet 4.1.

If **no**, complete Items 4 and 5 and Worksheet 4.1 may be required.

4. DESCRIPTION OF IMMEDIATE RECEIVING WATERS (Instructions, Page 75)

a. Name of the immediate receiving waters: Click to enter text.

b. Check the appropriate description of the immediate receiving waters:

- ☐ Lake or Pond
  - Surface area (acres): Click to enter text.
  - Average depth of the entire water body (feet): Click to enter text.
  - Average depth of water body within a 500-foot radius of the discharge point (feet): Click to enter text.
- ☐ Man-Made Channel or Ditch
- ☐ Stream or Creek
- ☐ Freshwater Swamp or Marsh
- ☐ Tidal Stream, Bayou, or Marsh
- ☐ Open Bay
- ☐ Other, specify: Click to enter text.

If **Man-Made Channel or Ditch** or **Stream or Creek** were selected above, provide responses to Items 4.c – 4.g below:

c. For **existing discharges**, check the description below that best characterizes the area **upstream** of the discharge.

For **new discharges**, check the description below that best characterizes the area **downstream** of the discharge.

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

Check the source(s) of the information used to characterize the area upstream (existing discharge) or downstream (new discharge):

- ☐ USGS flow records
- ☐ personal observation
- ☐ historical observation by adjacent landowner(s)
- ☐ other, specify: Click to enter text.

d. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point: Click to enter text.

e. 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**, describe how: Click to enter text.

f. General observations of the water body during normal dry weather conditions: Click to enter text.

Date and time of observation: Click to enter text.

g. The water body was influenced by stormwater runoff during observations.

☐ Yes ☐ No

If **yes**, describe how: Click to enter text.

5. GENERAL CHARACTERISTICS OF WATER BODY (Instructions, Page 75)

a. Is the receiving water upstream of the existing discharge or proposed discharge site influenced by any of the following (check all that apply):

- ☐ oil field activities
- ☐ agricultural runoff
- ☐ upstream discharges
- ☐ urban runoff
- ☐ septic tanks
- ☐ other, specify: Click to enter text.

b. Uses of water body observed or evidence of such uses (check all that apply):

- ☐ livestock watering
- ☐ non-contact recreation
- ☐ domestic water supply
- ☐ contact recreation
- ☐ fishing
- ☐ industrial water supply
- ☐ irrigation withdrawal
- ☐ navigation
- ☐ picnic/park activities
- ☐ other, specify: Click to enter text.

c. Description which best describes the aesthetics of the receiving water and the surrounding area (check only one):

- ☐ **Wilderness:** outstanding natural beauty; usually wooded or un-pastured area: water clarity exceptional
- ☐ **Natural Area:** trees or native vegetation common; 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

Attachment 1

CORE Data Form

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

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 600919401		RN 103915435

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

US Department of Air Force, Former Kelly Air Force Base

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☒ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees ☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated? ☐ Yes ☒ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

2261 Hughes Avenue

Suite 155

City	JBSA-Lackland	State	TX	ZIP	78236	ZIP + 4	9853

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(806) 885-5010		(210) 395-9527

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

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.)

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Former Kelly Air Force Base

23. Street Address of the Regulated Entity: *(No PO Boxes)*								
	City		State		ZIP		ZIP + 4	
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Located approximately 4 miles southeast of the intersection of Military Drive and U.S. 90 and 0.1 miles north of Leon Creek

26. Nearest City	State	Nearest ZIP Code
San Antonio	TX	78226

27. Latitude (N) In Decimal:	29.363333	28. Longitude (W) In Decimal:	98.578611

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	21	48	98	34	43

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)
9711	NA	928110	NA

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Primarily environmental cleanup of Former Kelly AFB for redevelopment by Port Authority of San Antonio.

34. Mailing Address:	2261 Hughes Avenue							
	Suite 155							
	City	JBSA-Lackland	State	TX	ZIP	78236	ZIP + 4	9853

35. E-Mail Address:	

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(806) 885-5010		(210) 395-9527

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.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☒ Other: TPDES Industrial
				WQ0003955000

SECTION IV: Preparer Information

40. Name:	Paul Carroll	41. Title:	Program Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(806) 885-5010		(210) 395-9527	paul.carroll.1@us.af.mil

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:	US Deartment of the Air Force	Job Title:	Program Manager	
Name*(In Print)* :	Paul Carroll		Phone:	(806) 885-5010
Signature:	Paul Carroll		Date:	10/17/19

Attachment 2

Co-ownership Agreement

AGREEMENT
RCRA Permit, Zone 3
Former Kelly AFB, TX

This Agreement is made by and among the United States of America, acting by and through its Secretary of the Air Force ("Air Force"), and Port Authority of San Antonio ("Port Authority," formerly known as Greater Kelly Development Authority, the successor in interest to Greater Kelly Development Corporation ("GKDC"). The Air Force and Port Authority may also be described separately as a "party" or collectively as "parties."

WITNESSETH

WHEREAS, Paragraph 2.2 of Amendment No. 3 to the Economic Development Conveyance (EDC) Agreement dated July 24, 1997 states "The Redevelopment Authority, by virtue of its execution of its related Lease dated July 24, 1997 and its subsequent Amendments, containing the EDC Premises, confirms and ratifies that it will accept control of the EDC Premises within a reasonable time."

WHEREAS, the Air Force intends to, by one or more deeds, transfer approximately 363.4 Acres of property to Port Authority. This property transfer will include real property located in Zone 3 (See Attachment I). The property includes Installation Restoration Program (IRP) sites with remaining environmental contamination in soil and groundwater; these sites will be deed restricted with institutional and engineering controls, and a number of the sites are undergoing remediation as required under the former Kelly AFB RCRA Hazardous Waste Permit and Groundwater Compliance Permit No. 50310.

WHEREAS, the Air Force is required to modify its Hazardous Waste Permit and Groundwater Compliance Plan ("Permit and Groundwater Compliance Plan") issued to former Kelly AFB on June 12, 1998 and renewed on April 13, 2009 by Texas Commission on Environmental Quality (TCEQ) (formerly known as Texas Natural Resource Conservation Commission [TNRCC]), at least 90 days prior to the transfer of the property in order to include the Port Authority as co-owner of the Permit and Groundwater Compliance Plan for the contaminated property that is transferred to Port Authority (Parcel 16, Zone 3) per Title 30 Texas Administrative Code ("TAC") §305.64(g).

NOW THEREFORE, the parties hereto agree that:

1. The Air Force and Port Authority shall submit this Agreement in writing to the TCEQ evidencing the Air Force's intent to transfer the above-described property by deed to Port Authority and to add Port Authority as a co-owner to the Permit and Groundwater Compliance Plan for Zone 3 per 30 TAC §305.64(g).

2. The Air Force and Port Authority shall submit a revised permit application no later than 90 days prior to the Air Force conveying by deed the above described property to Port Authority per 30 TAC §305.64(g).

3. The parties hereto acknowledge and agree that Port Authority will be identified as co-owner of the Hazardous Waste Permit No. 50310 with respect to the above described property but will not be responsible under the Permit for any corrective action or financial assurance requirements for hazardous waste contamination existing on the property prior to occupation or use by Port Authority (and its predecessor in interest, GKDC) or its tenants unless otherwise indicated by the deed(s) for this property. Further, the Port Authority will not be responsible for any cleanup costs or liabilities associated with such existing contamination unless otherwise indicated by the deed(s) for this property.

4. The parties hereto acknowledge and agree that, with respect to responding to hazardous waste contamination existing on the property prior to occupation or use by Port Authority (and its predecessor in interest, GKDC) or its tenants, the Air Force will be identified as the Operator on the Permit and will be responsible for compliance with all provisions of the Permit.

5. The parties hereto acknowledge and agree that the Air Force (or its designated Contractors) will have continuing access to the Property in order to carry out any response action or corrective actions as required under the Permit, and to monitor the effectiveness of the cleanup actions and to take additional remedial or removal actions as may be found necessary after the transfer of the Property.

6. The parties hereto acknowledge and agree that the Port Authority, and/or its heirs, successors and assigns, and all present and subsequent owners or other person acquiring an interest in the Property, will not conduct activities that could disrupt any remediation activities and jeopardize the protectiveness of these remedies, such as surface application of water that could impact the migration of contaminated groundwater, subsurface drilling or use of groundwater unless the Air Force determines there will be no adverse effect on the remediation process, construction that would interfere or negatively impact, or restrict access for cleanup work, and any other activities that impact and affect treatment systems operations, including the integrity of the monitoring wells located on the Property..

7. The parties hereto acknowledge and agree that the Air Force will retain ownership of the monitoring wells, remediation systems, and groundwater treatment systems located on the Property and will maintain these systems until such a time the Air Force and regulatory agencies determine they are no longer necessary. The Air Force will also continue to maintain the permits (TPDES permit for the groundwater treatment plant) and permit by-rule authorizations (for emissions from the SVE and bioventing systems) associated with these remediation systems until such a time they are deemed no longer necessary. Additionally, the Air Force will maintain Underground Injection Well permits associated with these remediation systems located in Zone 3, as well as those located in Zones 2 and 5, until such a time they are deemed no longer necessary.

8. The parties hereto acknowledge and agree that the Air Force shall maintain a Radioactive Material Permit issued by the US Air Force Radio Isotope Committee (RIC) for existing contamination at Buildings 361 and 365 until such a time the Air Force deem they are no longer necessary. The parties agree that no remediation, alteration to building structure and floor, or removal of building material shall be performed without specific authorization

from the Air Force and the RIC, in accordance with the provisions of the permit.

9. The Effective date of this Agreement will be the date of execution by the party who last executes this Agreement.

DATE: 10 June 2010

SIGNATURE:

NAME: STEPHEN TERMAATH

TITLE: Chief, BRAC Program Management Division
Air Force Real Property Agency

DATE: 10 JUNE 2010

SIGNATURE:

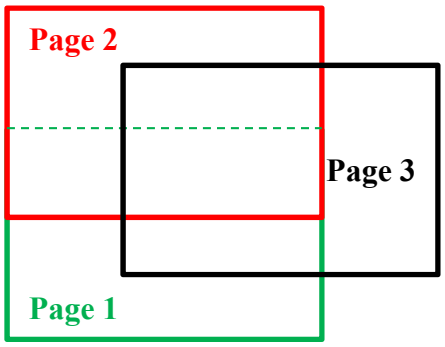
NAME: BRUCE E. MILLER

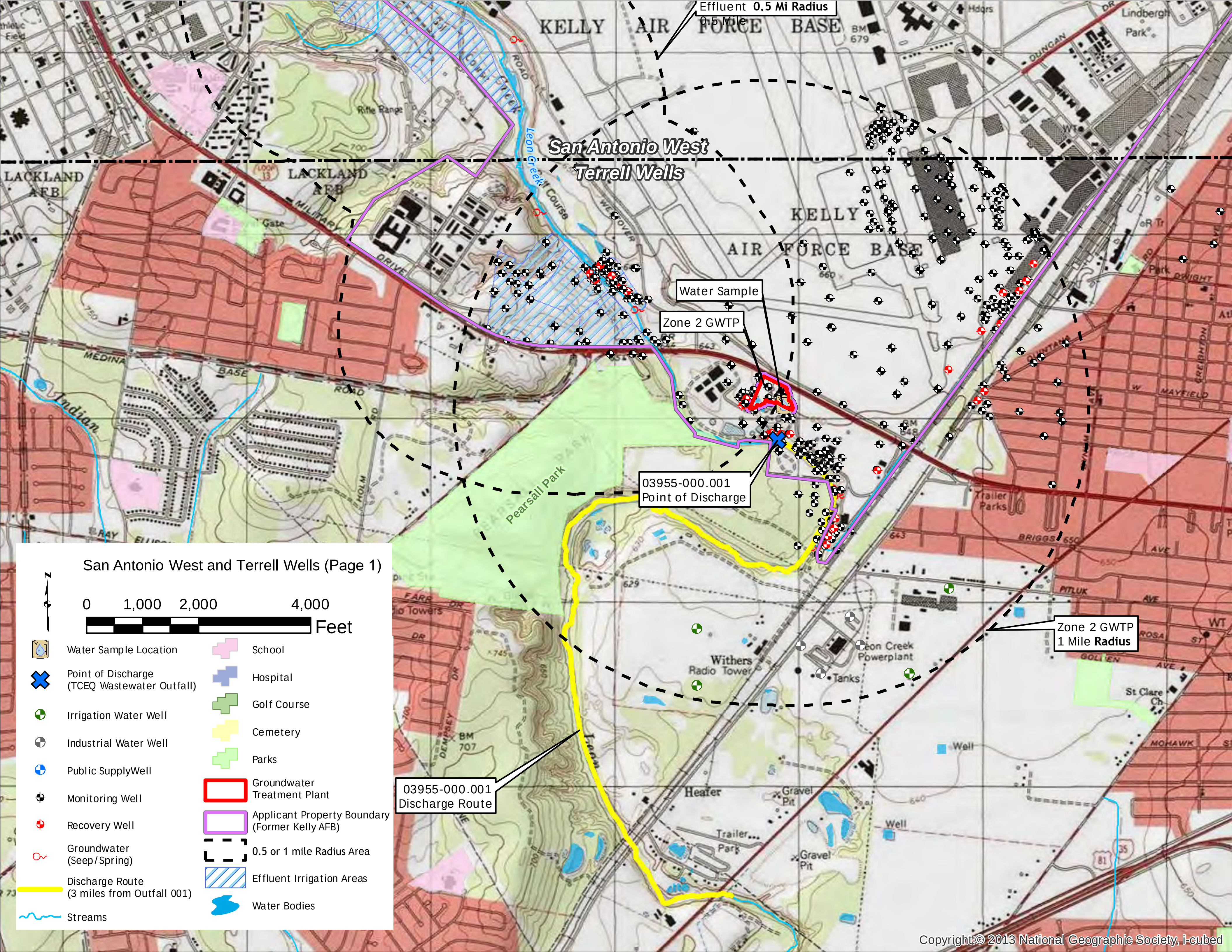
TITLE: Chief Executive Officer
Port Authority of San Antonio

Attachment 3

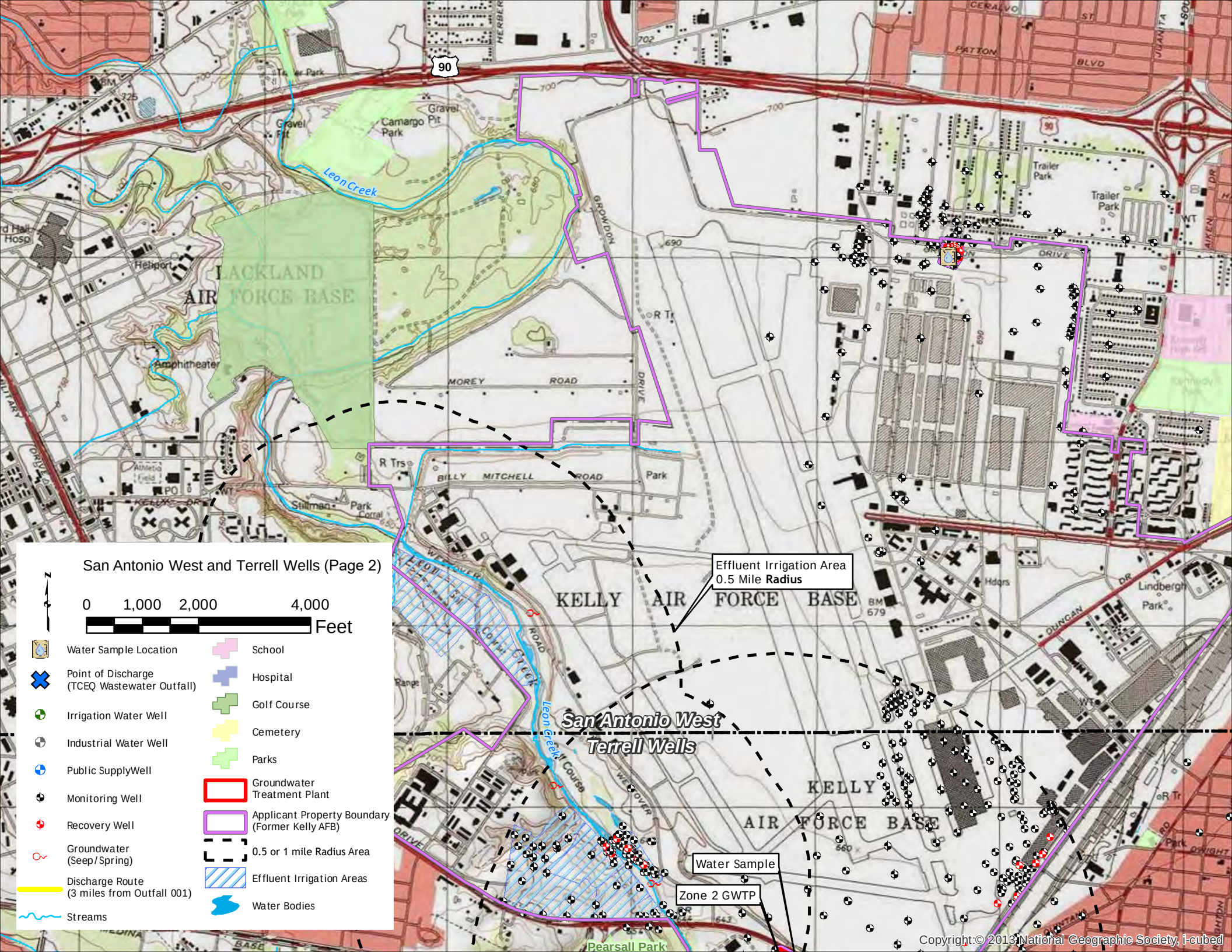
USGS San Antonio West and Terrell Wells

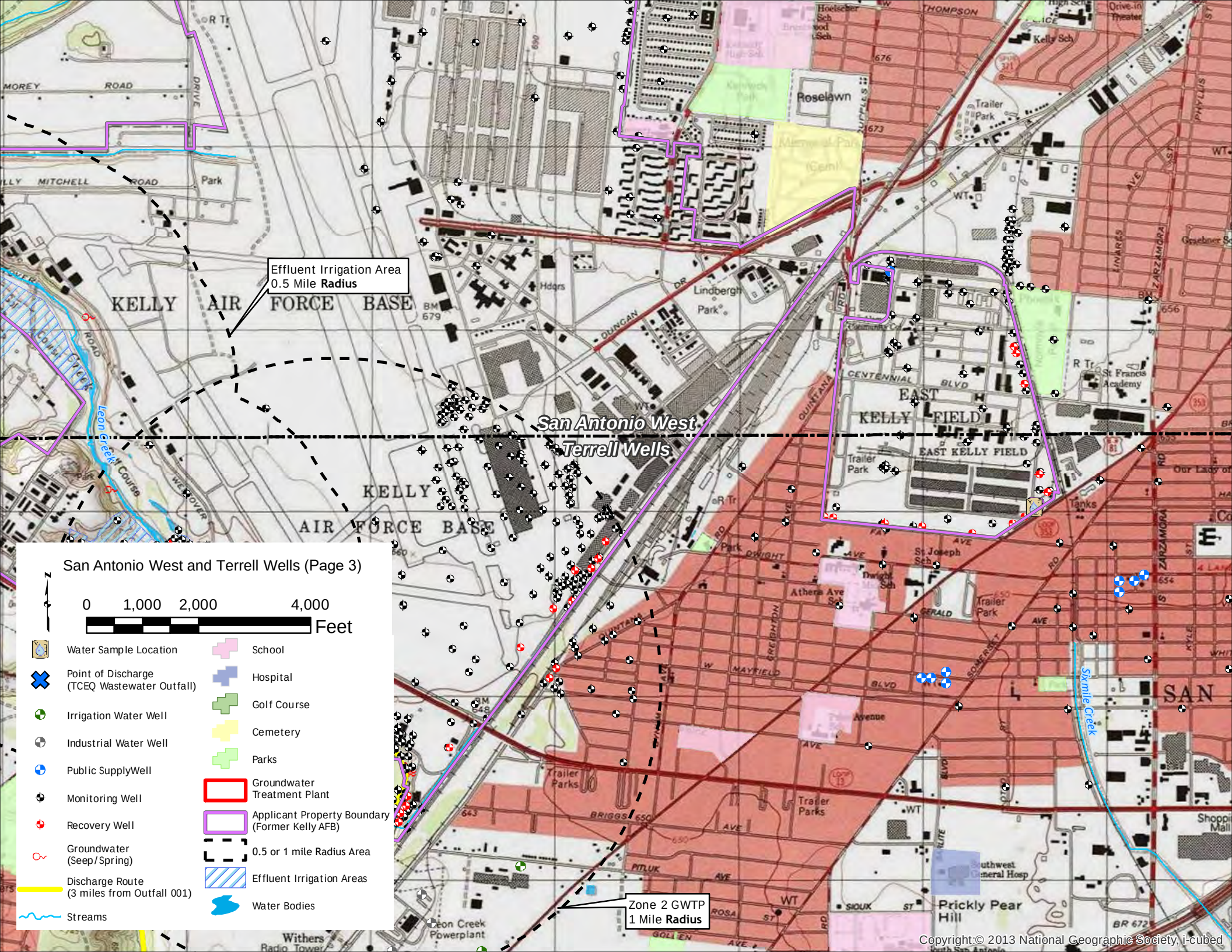
(8½" × 11" – 3 pages match as indicated below)





San Antonio West and Terrell Wells (Page 1)
0 1,000 2,000 4,000 Feet
Water Sample Location
Point of Discharge (TCEQ Wastewater Outfall)
Irrigation Water Well
Industrial Water Well
Public SupplyWell
Monitoring Well
Recovery Well
Groundwater (Seep/Spring)
Discharge Route (3 miles from Outfall 001)
Streams
School
Hospital
Golf Course
Cemetery
Parks
Groundwater Treatment Plant
Applicant Property Boundary (Former Kelly AFB)
0.5 or 1 mile Radius Area
Effluent Irrigation Areas
Water Bodies
Effluent 0.5 Mi Radius
Water Sample
Zone 2 GWTP
03955-000.001 Point of Discharge
03955-000.001 Discharge Route
Zone 2 GWTP 1 Mile Radius
San Antonio West
Terrell Wells
KELLY AIR FORCE BASE
LACKLAND AFB
Pearsall Park
Leon Creek
Withers Radio Tower
Leon Creek Powerplant
Tanks
Heafer
Trailer Park
Gravel Pit
Well
Trailer Parks
St Clare Ch
Copyright:© 2013 National Geographic Society, i-cubed


San Antonio West and Terrell Wells (Page 2)
N
0 1,000 2,000 4,000
Feet
Water Sample Location
Point of Discharge (TCEQ Wastewater Outfall)
Irrigation Water Well
Industrial Water Well
Public SupplyWell
Monitoring Well
Recovery Well
Groundwater (Seep/Spring)
Discharge Route (3 miles from Outfall 001)
Streams
School
Hospital
Golf Course
Cemetery
Parks
Groundwater Treatment Plant
Applicant Property Boundary (Former Kelly AFB)
0.5 or 1 mile Radius Area
Effluent Irrigation Areas
Water Bodies
Effluent Irrigation Area 0.5 Mile Radius
San Antonio West Terrell Wells
Water Sample
Zone 2 GWTP
KELLY AIR FORCE BASE
LACKLAND AIR FORCE BASE
Leon Creek
Pearsall Park
Copyright © 2013 National Geographic Society, i-cubed



San Antonio West and Terrell Wells (Page 3)

N

0 1,000 2,000 4,000 Feet

- Water Sample Location
- Point of Discharge (TCEQ Wastewater Outfall)
- Irrigation Water Well
- Industrial Water Well
- Public SupplyWell
- Monitoring Well
- Recovery Well
- Groundwater (Seep/Spring)
- Discharge Route (3 miles from Outfall 001)
- Streams
- School
- Hospital
- Golf Course
- Cemetery
- Parks
- Groundwater Treatment Plant
- Applicant Property Boundary (Former Kelly AFB)
- 0.5 or 1 mile Radius Area
- Effluent Irrigation Areas
- Water Bodies

Attachment 4

Original Photographs

7/1/2019 | OFFICE: HOU | AUTHOR: BGrod | REVIEWER: SWatson | G:\Kelly_AFB\GIS_Documents\Mxd\Basewide\TPDES\2019\Attach4a_Z1Irrigation1.mxd

LEGEND

- Site Photo
- Photo Direction
- Streams
- Effluent Irrigation Areas
- Water Bodies

NAD 1927 TX STATE PLANE SOUTH CENTRAL FEET

0 20 40 80 Meters

0 115 230 460 Feet

APTIM
Federal Services
LLC

Attachment 4a

Site Photos with
Location and Direction
Effluent Irrigation Areas

Former Kelly AFB, San Antonio, TX

Note: See subsequent pages for complete set of photographs which match labels on map.

G:\Kelly_AFB\GIS_Documents\Mxd\Basewide\TPDES\2019\Attach4b_Z1Irrigation2.mxd

REVIEWER: SWatson

AUTHOR: BGrod

OFFICE: HOU

7/1/2019

LEGEND

- Site Photo
- Photo Direction
- Streams
- Effluent Irrigation Areas
- Water Bodies

NAD 1927 TX STATE PLANE SOUTH CENTRAL FEET

0 20 40 80 Meters

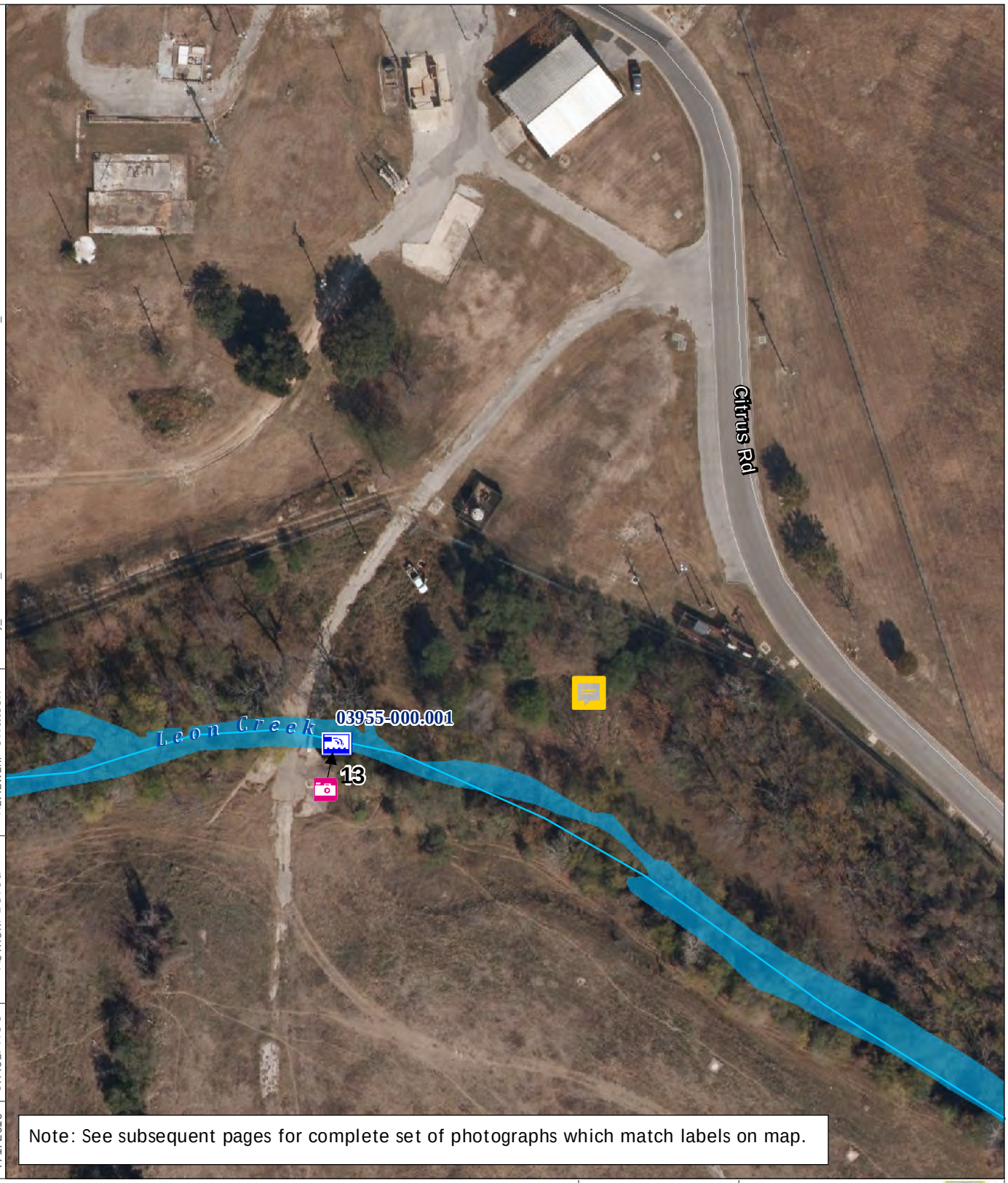
0 95 190 380 Feet

APTIM
Federal Services
LLC

Attachment 4b

Site Photos with
Location and Direction
Effluent Irrigation Areas

Former Kelly AFB, San Antonio, TX



Note: See subsequent pages for complete set of photographs which match labels on map.

G:\Kelly_AFB\GIS_Documents\Mxd\Basewide\TPDES\2019\Attach4c_Z2Outfall.mxd

Reviewer: SWatson

Author: BGrod

Office: HOU

7/1/2019

Legend

- Site Photo
- Photo Direction
- Point of Discharge (TCEQ Wastewater Outfall)
- Streams
- Water Bodies

N

NAD 1927 TX State Plane South Central Feet

0 4 8 16 Meters

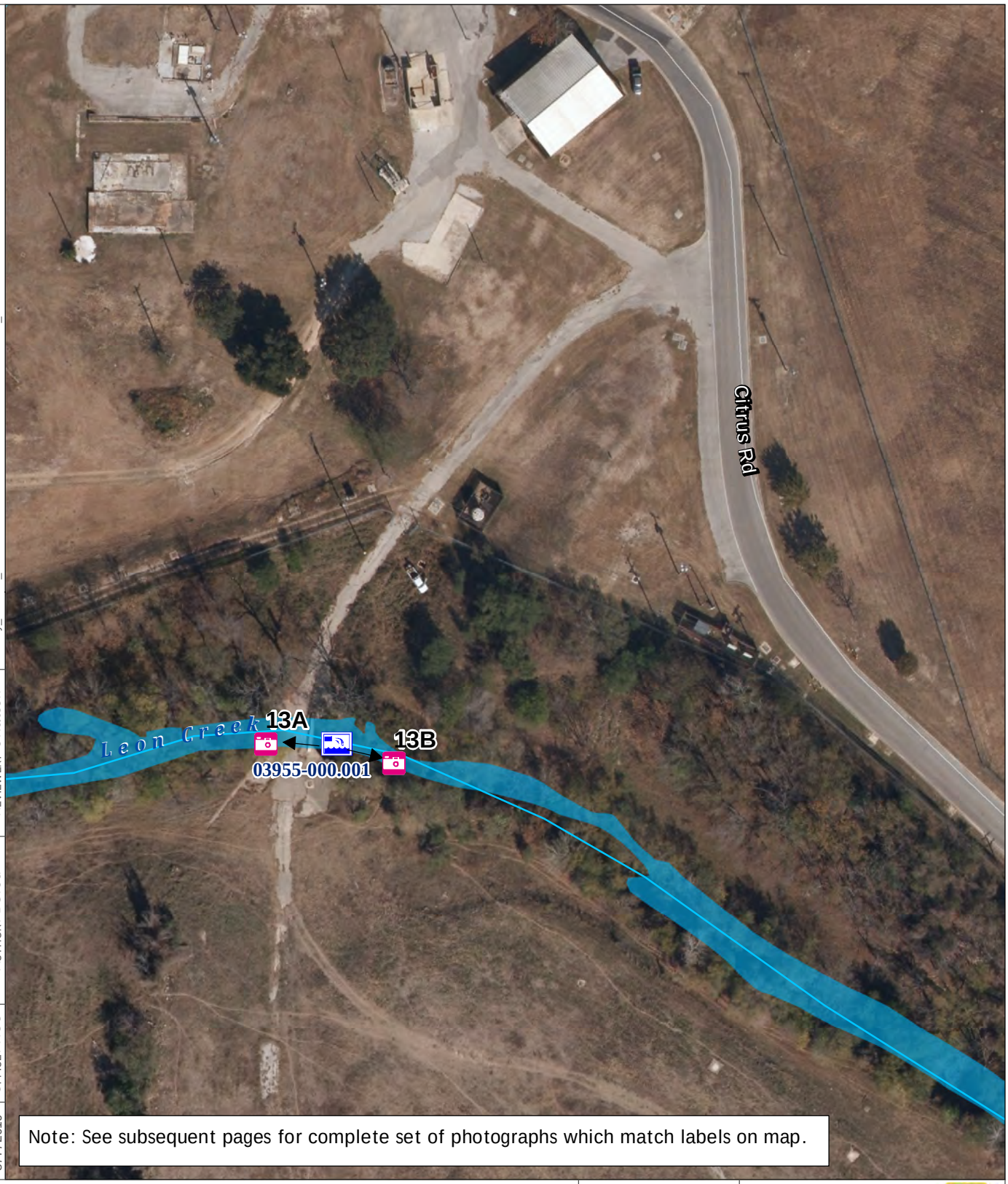
0 15 30 60 Feet

APTIM
Federal Services
LLC

Attachment 4c

Site Photos with Location and Direction
03955-000.001 Outfall

Former Kelly AFB, San Antonio, TX



Note: See subsequent pages for complete set of photographs which match labels on map.

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REVIEWER: SWatson

AUTHOR: BGrod

OFFICE: HOU

8/7/2019

LEGEND

- Site Photo
- Photo Direction
- Point of Discharge (TCEQ Wastewater Outfall)
- Streams
- Water Bodies

NAD 1927 TX STATE PLANE SOUTH CENTRAL FEET

0 4 8 16 Meters

0 15 30 60 Feet

APTIM
Federal Services
LLC

Attachment 4c

Site Photos with Location and Direction
03955-000.001 Outfall

Former Kelly AFB, San Antonio, TX

Attachment 4 – Site Photos

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13 (Outfall 001 [0395-000.001])

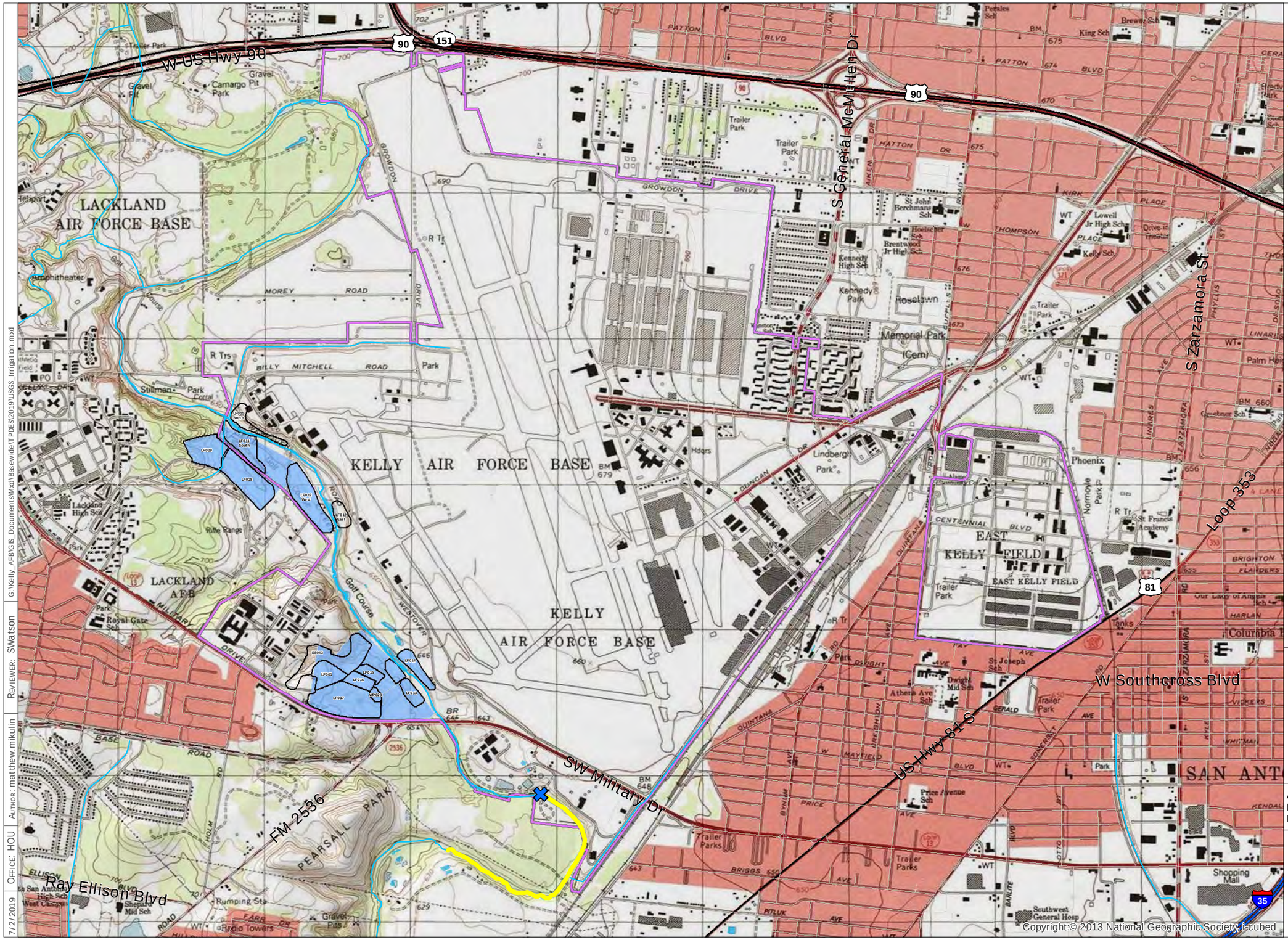
Photo 13A (Leon Creek - Upstream of Outfall 001)

Photo 13B (Leon Creek - Downstream of Outfall 001)

Attachment 5

SPIF USGS Map

(includes Irrigation Coverage Area)



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REVIEWER: SWatson

AUTHOR: matthew.mikulin

OFFICE: HOU

7/2/2019

Attachment 6

Facilities Map, Process Flow Diagrams, and Worksheet 2.b. Water Balance Description

Former Kelly AFB

Zone 5

Zone 4

Former Kelly AFB

Zone 3

Zone 2

Zone 1

Zone 2 GWTP

Headwaters

Effluent Sampling Point

03955-000.001

Leon Creek

Leon Creek

Growdon Rd

Growdon Road

SW 36th St

General Hudnell Dr

Elser Ave

Somerset Rd

Quintana Rd

Berman Rd

New Laredo Hwy

Citrus Rd

SW Military Dr

Sixmile Creek

90

13

LEGEND

Groundwater Treatment Plant

Former Kelly AFB/Lackland AFB

Zone

0 150 300 600 Meters

0 400 800 1,600 Feet

N

WGS 84 UTM ZONE 14N METERS

TEXAS

San Antonio

Kelly AFB

Bexar County

APTIM
Federal Services
LLC

Attachment 6

Facilities Map

Former Kelly AFB, San Antonio, TX

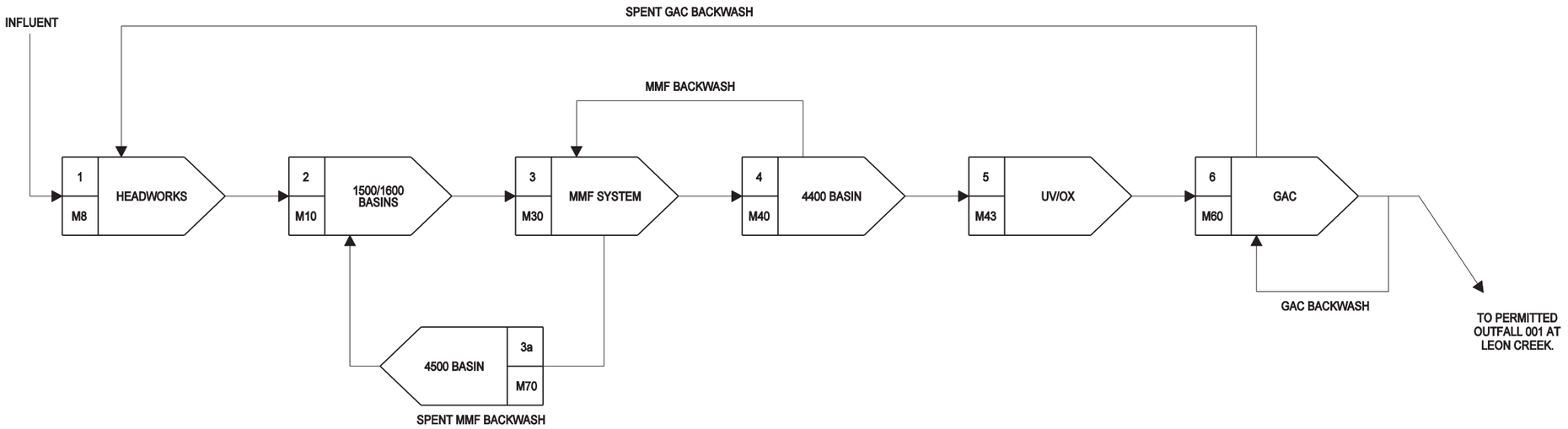
FILE PATH: G:\Kelly_AFB\GIS_Documents\Mxd\Basewide\TPDES\2019\Attach6_Facilities.mxd

REVIEWER: RDuffield

AUTHOR: BGrod

OFFICE: HOU

07/02/19



1. HEADWORKS

2. 1500/1600 BASINS

3. MMF SYSTEM

4. 4400 BASIN

5. UV.OX (B618a & b)

6. GAC (B633)

7. OUTFALL 001

3a. 4500 BASIN

1) Headworks: The Headworks is a sub-grade open top concrete structure which serves as the inlet structure for the Zone 2 GWTP. Groundwater collected from the well fields located in Zones 1/2/3, water from the sump at the Soil Staging Facility at B545, water from the sumps at the Zone 2 GWTP, and spent backwash from the GAC vessels is pumped into the headworks and comprises the influent stream to Zone 2 GWTP.

2) 1500/1600 Basins: Effluent from the headworks is gravity fed to two equalization basins designated as the 1500/1600 Basins. The basins provide large storage capacity which smoothes out daily fluctuations in flow to achieve a relatively constant loading to the downstream treatment processes.

3) Multimedia Filter (MMF) System: Effluent from the 1500/1600 Basins is pumped through three MMF vessels operating in parallel to remove fine suspended solids in the recovered groundwater. Backwash for the MMF vessels is pumped from the 4400 Basin (see process 4). Spent backwash is pumped to the 4500 basin (see process 3a)

   3a) 4500 Basin: Spent backwash from the MMF system is temporarily stored in Basin 4500 prior to being pumped to the 1500 Basin to be reprocessed through the GWTP.

4) 4400 Basin: The 4400 Basin serves as a collection basin for filtrate from the MMF System prior to the primary treatment stages (i.e. UV/OX and GAC).

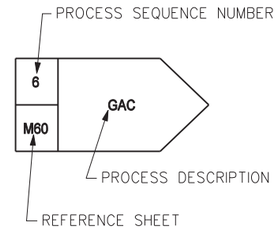
5) UV/OX Treatment System: Water from the 4400 Basin is pumped to the UV/OX treatment system comprised of four UV/OX treatment units. Each unit consists of two skids each with 3 reactors connected in series. The four treatment units are connected in parallel to allow for process flow through any selected unit(s) as determined necessary.

6) GAC Polishing: Effluent from the UV/OX system is processed through a GAC absorption system for final treatment. The GAC system consists of three skids connected in parallel. Each skid contains two adsorption vessels operated in series. Backwash water for the GAC vessels is pumped from the treated effluent tank, through the GAC vessel(s) to be backwashed, and to the headworks.

7) Outfall 001: Treated effluent from the GAC vessels is discharged to Leon Creek through permitted Outfall 001 (TX0116114).

NOTES:

1) FOR A DETAILED PROCESS FLOW DIAGRAM, SEE SHEETS M2 AND M3.
2) A P&ID IS PRESENTED ON SHEETS M4 AND M5.
3) A GENERAL SITE LAYOUT INDICATING THE LOCATIONS OF PROCESS AND COMPONENTS IDENTIFIED HERE IS PRESENTED ON SHEET C1.



REV.	DATE	DESCRIPTIONS	DRAWN BY	APPROVED BY

Science Applications International Corporation
4242 Woodcock, Suite 150
San Antonio, TX 78228
(210) 731-2200

CLIENT: UNITED STATES AIR FORCE REAL PROPERTY AGENCY

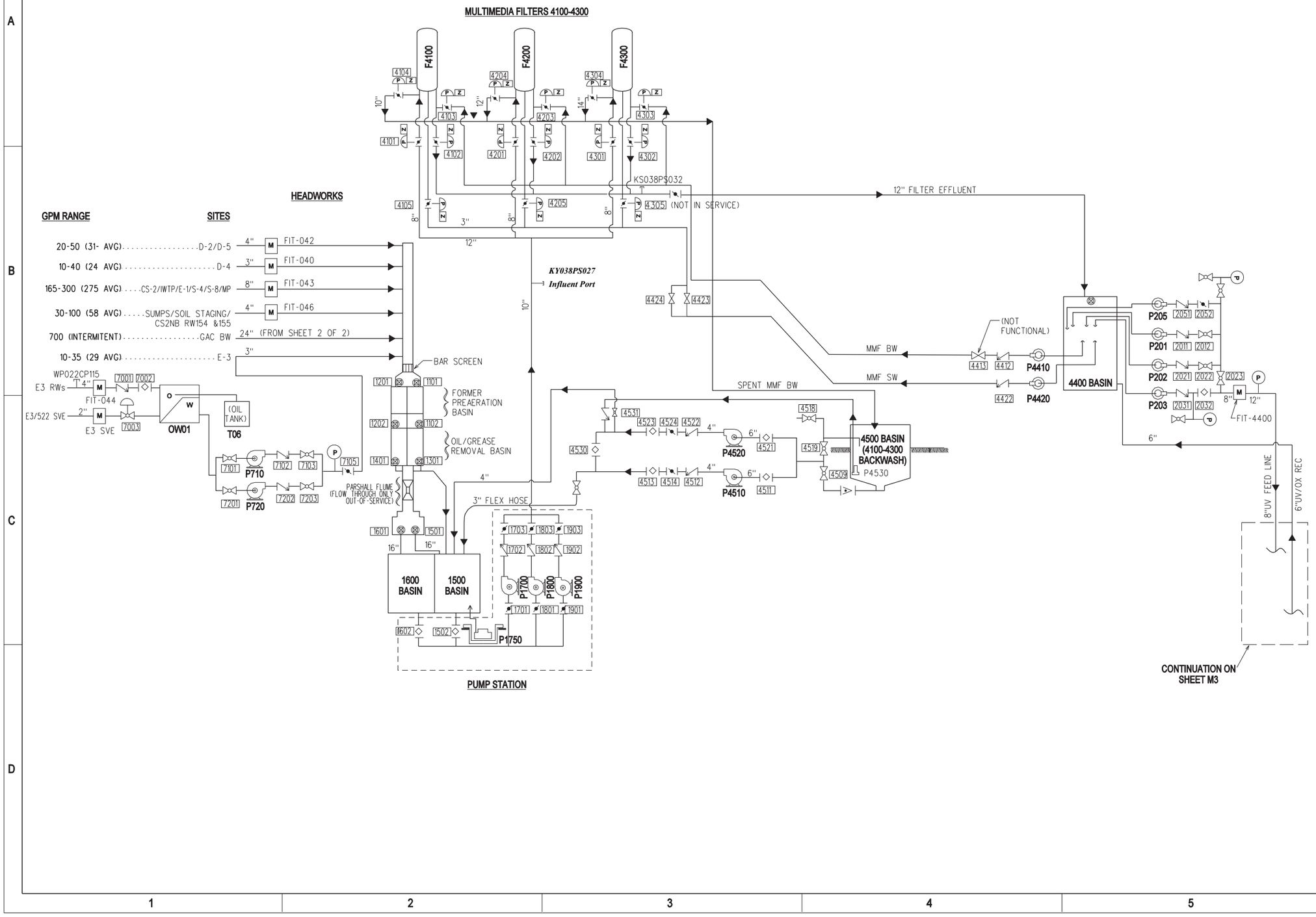
PROJECT: FORMER KELLY AIR FORCE BASE SAN ANTONIO, TEXAS

AS BUILT DRAWINGS
ZONE 2 GWTP
BLOCK DIAGRAM AND PROCESS DESCRIPTION

DRAWN BY: AA
DESIGNED BY: x
CHECKED BY: x
APPROVED BY: x

DATE: FEBRUARY 05 2005 | SCALE: NOT TO SCALE
JOB NO.: 01-1127-01-4253-015 | CAD FILE: U27-Z2-M01

M1
SHEET NUMBER



REV.	DATE	DESCRIPTIONS	DRAWN BY	APPROVED BY

SAIC® Science Applications International Corporation

4242 Woodcock, Suite 150
San Antonio, TX 78228
(210) 731-2200

CLIENT: UNITED STATES AIR FORCE REAL PROPERTY AGENCY

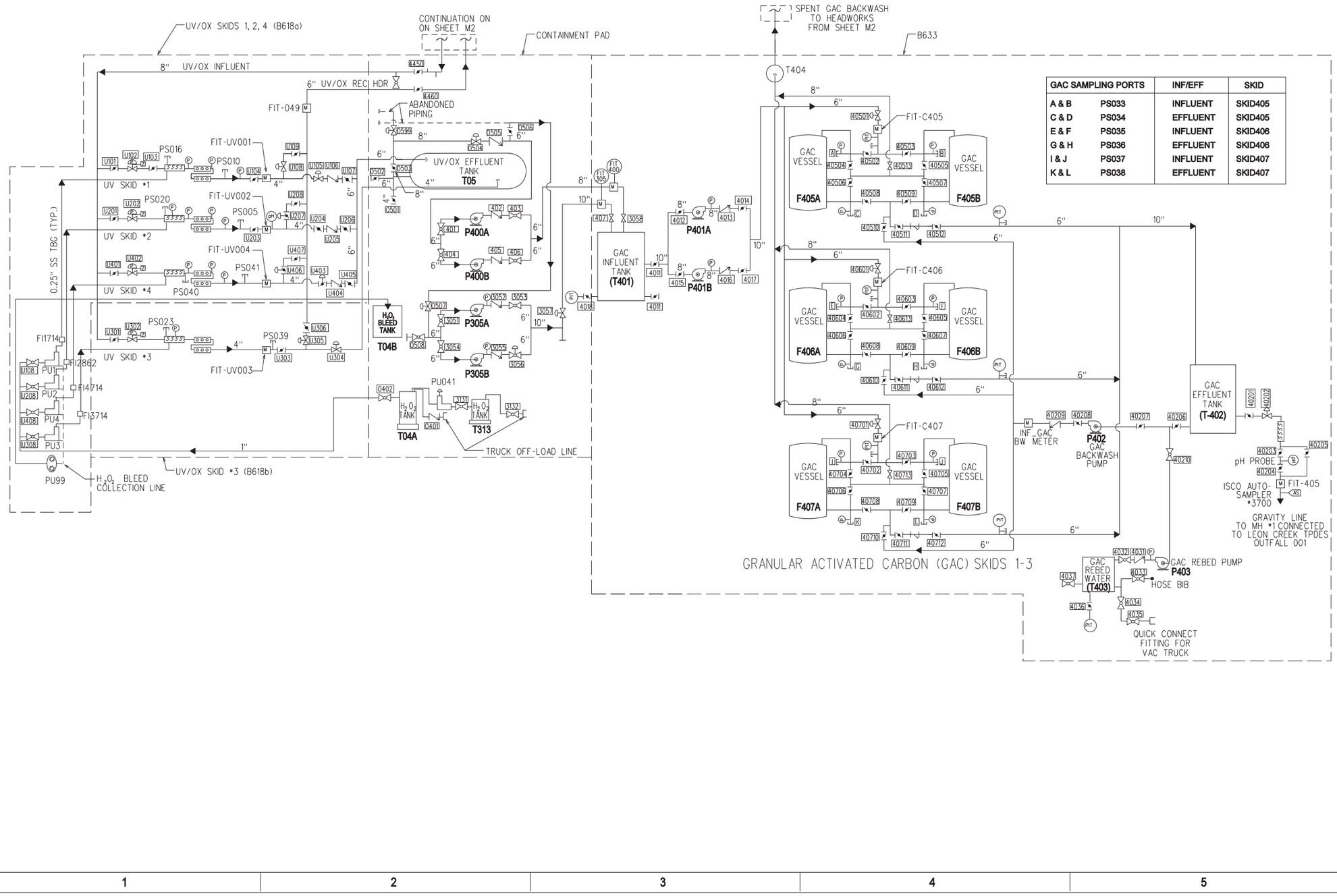
PROJECT: FORMER KELLY AIR FORCE BASE SAN ANTONIO, TEXAS

AS BUILT DRAWINGS
ZONE 2 GWTP
PROCESS FLOW DIAGRAM (SHEET 1 OF 2)

DRAWN BY: AA
DESIGNED BY: x
CHECKED BY: x
APPROVED BY: x

DATE: 29 OCT 04 | SCALE: NOT TO SCALE
JOB NO. 01-1127-01-4253-015 | CAD FILE: U27-Z2-M02

M2
SHEET NUMBER



GAC SAMPLING PORTS		INF/EFF	SKID
A & B	PS033	INFLUENT	SKID405
C & D	PS034	EFFLUENT	SKID405
E & F	PS035	INFLUENT	SKID406
G & H	PS036	EFFLUENT	SKID406
I & J	PS037	INFLUENT	SKID407
K & L	PS038	EFFLUENT	SKID407

REV.	DATE	DESCRIPTIONS	DRAWN BY	APPROVED BY

Science Applications International Corporation
4242 Woodcock, Suite 150
San Antonio, TX 78228
(210) 731-2200

CLIENT: UNITED STATES AIR FORCE REAL PROPERTY AGENCY

PROJECT: FORMER KELLY AIR FORCE BASE SAN ANTONIO, TEXAS

AS BUILT DRAWINGS
ZONE 2 GWTP
PROCESS FLOW DIAGRAM (SHEET 2 OF 2)

DRAWN BY: AA
DESIGNED BY: x
CHECKED BY: x
APPROVED BY: x

DATE: 29 OCT 04
SCALE: NOT TO SCALE
JOB NO. 01-1127-01-4253-015
CAD FILE: U27-Z2-M03

M3
SHEET NUMBER

Attachment 6
TPDES TCEQ WQ0003955000 Permit Renewal Application
Worksheet 2.b. Water Balance Description

Please refer to Figure M1 for the main treatment components.

The influent rate varies based on the amount of water extracted from the recovery well fields. Two concrete basins (each has a capacity of 500,000 gallons) are located after the headworks. The use of these basins allows for fluctuations in the groundwater extraction volumes and temporary shutdown of the treatment system (e.g. maintenance of vessels) without disrupting the groundwater extraction. The continuously ongoing extraction from the compliance sites is part of the remedy in the RCRA Permit/Compliance Plan No. 50310.

In addition to the influent from the recovery well fields, carbon backwash water is also introduced back into the headworks and will typically range from 0.2 to 0.5 million gallons per month.

Typical average volume per month of influent and effluent is 0.2 million gallons per day (MGD).

Attachment 7

TCEQ Approval Letters

Outfall 003 (Zone 4) and Outfall 004 (Site S-1)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 7, 2019

Mr. Paul F. Carroll, GS-13, P.G.
Program Manager
BRAC Execution Branch
AFCEC/CIBE
9801 Reese Blvd. North, Ste 210
Lubbock, TX 79416-2107

Re: TCEQ Conditional Approval of *Technical Memorandum-Zone 4 Groundwater-Proposed Remedy Change, Former Kelly Air Force Base, San Antonio, Texas, Rev 0,* dated February 21, 2019
Former Kelly Air Force Base, San Antonio, Texas
TCEQ SWR No. 31750; TCEQ Hazardous Waste Permit/Compliance Plan No. HW/CP-50310; EPA ID No. TX2571724333; Customer No. CN600919401; Regulated Entity No. RN102338480

Dear Mr. Carroll:

The Texas Commission on Environmental Quality (TCEQ) has completed our review of the above referenced document submitted by representatives of the Air Force Civil Engineer Center (AFCEC). The February 21, 2019 submittal provides a technical evaluation to support AFCEC's proposal to modify the remedy for Zone 4 groundwater by removing the groundwater recovery and treatment portion of the remedy currently established in the above referenced permit (HW/CP-50310). The current remedy for Zone 4 relies on institutional controls, continued operation of a groundwater treatment system (GWTS) comprised of groundwater recovery system, discharge of recovered and treated groundwater through a Texas Pollutant Discharge Elimination System (TPDES) permitted Outfall 003, permeable reactive barriers (PRBs), source treatment at SS051 using enhanced bioremediation, and monitored natural attenuation (MNA) of the SS052 plumes. AFCEC's February 21, 2019 document proposes to change the remedy at Zone 4 to remove the GWTS and to rely on MNA to reduce remaining groundwater plumes originated from MP and SS051.

Based on our review, the February 21, 2019 technical memorandum is conditionally approved as modified by the following:

- Final authorization to modify the Zone 4 groundwater remedy can only occur through formal modification of the above referenced permit (HW/CP-50310). *Please ensure the modification provides for annual MNA monitoring of geochemical parameters for SS051.*
- Although the TCEQ hereby provides AFCEC with authorization to begin the GWTS decommissioning and dismantling process prior to receiving the permit renewal, please note a closure plan is required to be submitted 90 days prior to initiating physical closure of *wastewater units and related components* associated with GWTS in response to the closure requirements of 30 TAC 335.8. Please refer to TCEQ Regulatory Guidance, RG-

366/TRRP-2A available at:
https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-366-trrp-02a.pdf.

Questions concerning this letter should be directed to me at (512) 239-6542. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Eleanor T. Wehner

Eleanor T. Wehner, P.G.
Project Manager
VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

ETW/mdh

cc: Mr. Gregory Lyssy, USEPA Region 6, 1445 Ross Avenue, Suite 1200, Mail Code: 6MM-RC
Dallas, TX 75202-2733

Mr. Cameron Lopez, Waste Section Manager, TCEQ Region 13 Office, San Antonio

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 20, 2018

Mr. Paul F. Carroll, GS-13, P.G.
Program Manager
BRAC Execution Branch
AFCEC/CIBE
9801 Reese Blvd. North, Ste 210
Lubbock, TX 79416-2107

Re: TCEQ Approval with Clarification of *Path Forward for Concentrations Exceeding GWPS Detected at SS003RW114R, Site SS003 (S-1)*, dated September 20, 2018
Final Report - Risk Reduction Standard No. 2 Residential, *Site S-1 Closure Report*, dated May 7, 2018
Former Waste Oil Storage Facility (Site S-1), Air Force Site No. SS003, Zone 5
Former Kelly Air Force Base, San Antonio, Texas;
TCEQ SWR No. 31750; TCEQ Hazardous Waste Permit/Compliance Plan No. HW/CP-50310; EPA ID No. TX2571724333; Customer No. CN600919401; Regulated Entity No. RN102338480

Dear Mr. Carroll:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced submittal providing notice of recent chlorobenzene concentrations detected above the groundwater protection standard (GWPS) in well SS03RW114R associated with the groundwater monitoring network for Site S-1. The well with the noted exceedance was reportedly sampled during the RCRA Permit and Compliance Plan annual monitoring event performed during June through July 2018. The TCEQ understands the results and data reports for SS003RW114R will be included in the January 2019 Annual Compliance Plan Report.

Concentrations of constituents of concern (COC) at SS03RW114R and other wells associated with Site S-1 were previously documented below the GWPS during the 2015, 2016 and 2017 annual monitoring events, and based on these prior results, the Air Force Civil Engineer Center (AFCEC) initially proposed the closure of Site S-1 in a report, dated May 7, 2018. The May 7, 2018 Closure Report for Site S-1 was approved by the TCEQ in a letter issued June 21, 2018. The September 20, 2018 notice provides a proposed path forward to address the GWPS exceedances associated with Site S-1.

Based on our review, the TCEQ's June 21, 2018 approval letter is hereby amended to acknowledge the September 20, 2018 notice and path forward, as modified by the following:

1. At this time, the May 7, 2018 closure report for Site S-1 provides sufficient information to document the closure/remediation of *soil only* to Risk Reduction Standard (RRS) No. 2 residential standards. However, please note proof of filing of the deed certification for the soil is required to support the closure of soil associated with Site S-1 to RRS No. 2. *Please ensure the draft deed certification provided in the May 7, 2018 report is updated to reflect*

applicability to soil only. Upon acceptance of the proof of deed certification, the TCEQ will transmit a letter releasing the facility from post-closure care responsibilities for soil associated with Site S-1.

2. As the RRS No. 2 groundwater closure criteria was not met in 2018 for Site S-1, the established groundwater corrective action program must continue for the unit until a time when the program exit criteria of Provision XI.D of the permit has been documented for Site S-1. At that time, AFCEC must submit an amended closure report [i.e., amended Corrective Measures Implementation (CMI) Report] for Site S-1 to the TCEQ for review in response to Provision XI.H.6. The revised CMI Report must document the closure/remediation activities, including any required deed certification/recordation specific to groundwater associated with Site S-1. A permit modification/amendment is also required to propose Corrective Action program completion for Site S-1.
3. AFCEC may continue to proceed with the planned decommissioning and dismantlement of the onsite groundwater treatment plant as proposed in the September 20, 2018 notice.
4. Existing monitor or recovery wells associated with Site S-1 should not be plugged and abandoned until the TCEQ has been notified and provided opportunity to comment on the proposal(s).

Please submit one paper copy and one electronic copy (on USB or disc) of a response to Comment No. 1 to the TCEQ Remediation Division at Mail Code MC-127 within thirty (30) days of the date of this letter. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response. Questions concerning this letter should be directed to me at (512) 239-6542.

Sincerely,

Eleanor T. Wehner

Eleanor T. Wehner, P.G.
Project Manager
VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

ETW/mdh

cc: Mr. Gary Miller, USEPA Region 6, 1445 Ross Avenue, Suite 1200, Mail Code: 6MM-RC
Dallas, TX 75202-2733

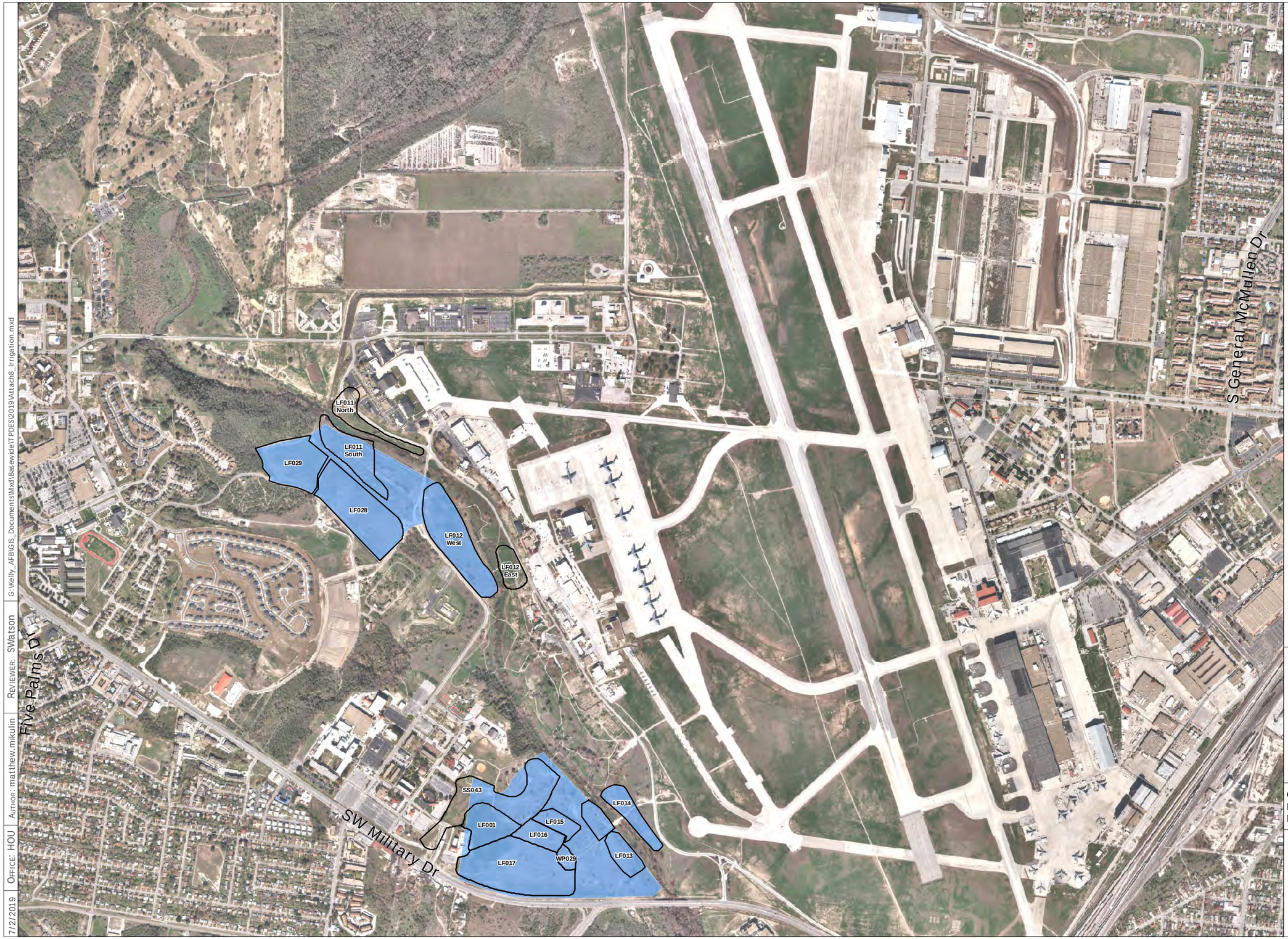
Mr. Cameron Lopez, Waste Section Manager, TCEQ Region 13 Office, San Antonio

Attachment 8

TLAP Information including:

- **Map for Effluent Irrigation Areas**
- **Cropping Plan**
- **USDA Soil Survey Map**
- **Worksheet 3.1 Information**
- **Irrigation Soil Sample Data**
- **Soil Sample Results Table**

(Note: Soil data for Zone 1 from the Sep 2017 – Aug 2018 period was submitted in the Sep 2018 netDMR. The soil sample for the Sep 2018 – Aug 2019 period has been collected and the data will be submitted via the DMR in Sep 2019. Please note that the Lackland Zone 1 Landfills within the Zone 1 irrigation areas are only sampled from 0 to 6 inches to protect the landfill cover integrity.)



LEGEND

- Approximate Area of Waste Disposal
- Irrigation Coverage Area

Source: Weston Solutions, 2009

1 inch = 1,300 feet

0 325 650 1,300 Feet

N

NAD 1927 TX STATE PLANE SOUTH CENTRAL FEET

CB&I
Federal Services
LLC

Attachment 8

Irrigation Coverage Area

Former Kelly AFB, San Antonio, TX

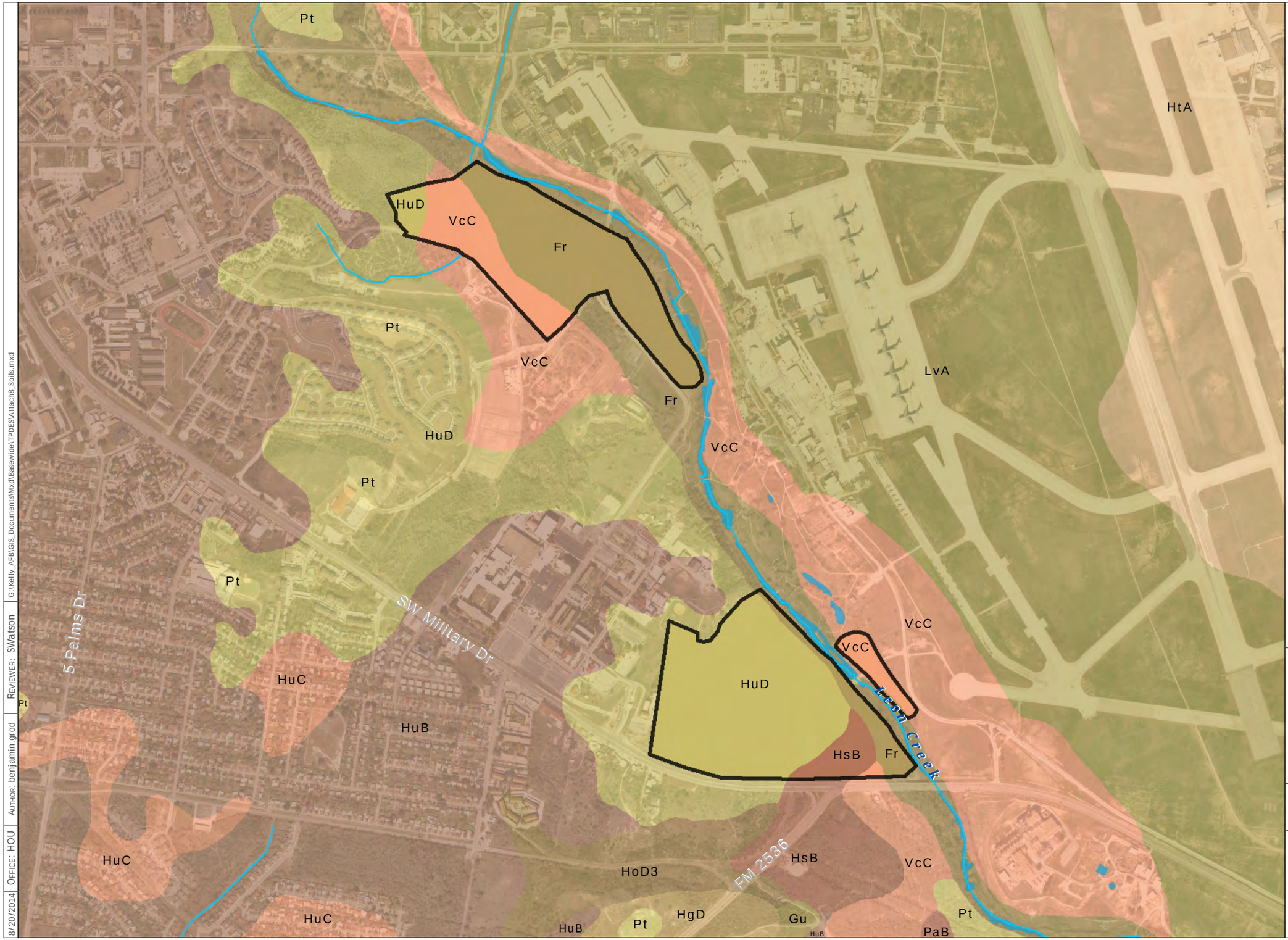
7/2/2019 | OFFICE: HOU | AUTHOR: matthew.mikulin | REVIEWER: SWatson | G:\Kelly_AFB\GIS_Documents\Mxd\BasewideTPDES\2019\Attach8_Irrigation.mxd

Attachment 8
AFCEC Annual Cropping Plan
WQ0003955-000

Irrigation Area	Crop	Acreage	Soil Type [a]	Growing Season	Nutrients Added			Watering Requirements	Salt Tolerances	Harvesting Method
					Mar/May	Jun/Aug	Sep/Nov			
Lackland Landfills North	Bermuda and Native Grasses	68	HuD/VcC/Fr	Year round	NA	NA	NA	As Needed	Highly Tolerant - 8 mmhos per cm	Mowing of trails - 5% of area
Lackland Landfills South	Bermuda and Native Grasses	90	HuD/HsB/Fr	Year round	NA	NA	NA	As Needed	Highly Tolerant - 8 mmhos per cm	Mowing of trails - 5% of area

[a] Acreage % of soil types: Houston Black Clay (HsB) - 5%; Sunev Clay Loam (VcC) - 16%; Loire Clay Loam (Fr) - 34%; and Houston Black Gravelly Clay (HuD) - 45%

Note: The irrigated areas are landfill covers and grassy common areas at Lackland Air Force Base and Former Kelly AFB. The irrigation is provided to maintain native vegetation and grasses and as such, there is no "crop" information as requested in the permit application form. The grasses at each irrigation site are mowed based on aesthetic requirements and there are no crop height, yield, or nitrogen requirements to provided. As the vegetation is maintained year-round, there is no removal of vegetation required prior to irrigation.



LEGEND

- Effluent Disposal Site (Irrigation Tract)

USDA Soil Survey

- Houston Black clay (HsB) (5% Total Area)
- Sunev clay loam (VcC) (16% Total Area)
- Loire clay loam (Fr) (34% Total Area)
- Houston Black gravelly clay (HuD) (45% Total Area)
- Streams

1 inch = 1,000 feet

0 250 500 1,000 Feet

NAD 1927 TX STATE PLANE SOUTH CENTRAL FEET

CB&I
Federal Services
LLC

Attachment 8a

USDA Soil Survey
Effluent Disposal Site

Former Kelly AFB, San Antonio, TX

8/20/2014 OFFICE: HOU AUTHOR: benjamin.grod REVIEWER: SWatson G:\Kelly_AFB\GIS_Documents\Mxd\Basewide\TPDES\Attach8_Soils.mxd

Attachment 8
TPDES TCEQ WQ0003955000 Permit Renewal Application
Worksheet 3.1 Surface Land Disposal of Effluent

2. Surface Spray (Irrigation)
An Engineering Report based on 30 TAC 309.20, Subchapter C, Land Disposal of Sewage Effluent is not being provided since AFCEC is currently permitted to discharge treated through an outfall to Leon Creek.

AFCEC is also currently permitted to use the treated groundwater for irrigation (Permit WQ0003955-000, pages 16-17) on 158 acres of the former Kelly Golf Course (now located on JBSA - Lackland AFB). JBSA - Lackland AFB plans to continue to use the treated groundwater for irrigation to maintain vegetative cover for landfill caps on the old Kelly Golf Course and two additional landfills (LF028 & LF029) that are adjacent to the old Kelly Golf Course. JBSA - Lackland AFB will plan to use irrigation water during the dry season (typically June-September). The design is to use a center pivot water cannon system and spray approximately 370,000 gpd for 10 – 12 days per month during the summer with virtually no watering during the winter. Total planned irrigation would be approximately 51 million gallons per year. No fertilizer application is planned and mowing will be minimal, mainly on trail pathways.

5. Overland Flow
A separate engineering report based on 30 TAC 217.212 is not being provided because any irrigation water runoff will not be a problem since the treated groundwater is already permitted for discharge to Leon Creek. Irrigation water will be stored in a 500,000 gallon concrete tank at the groundwater treatment plant until used on the Lackland landfill caps. The storage tank will be refilled as needed and the remaining treated effluent will be discharged through Outfall 001 to Leon Creek as per the current permit.

DATA EVALUATION REPORT
CHEMISTRY SERVICES

DATE: February 4, 2019

RECIPIENT: Terry Watkins (twatkins@cape-inc.com)

PREPARER: Albert Iannacone (aiannacone@cape-inc.com)

COPY: chemistrysvcs@cape-inc.com

PROJECT #: 10114-0004-380-210

PROJECT NAME: Soil TPDES Samples, Joint Base San Antonio (JBSA) - LAK, Lackland Air Force Base

DESCRIPTION: Annual 2018 TPDES Soil Sampling – PBR Landfills

ITEMS SUBMITTED UNDER THIS TRANSMITTAL:

ITEM CLASSIFICATION	ITEM DESCRIPTION	# OF COPIES
☐ Original Analytical Data (Hardcopy/CD)		
☒ Lab Reports – Annotated Form 1s	**TPDES Soil Sampling, Gulf Coast Analytical Laboratories, LLC**	1
☐ EDDs	**Baton Rouge, LA, SDG 218121437, Sampled December 13, 2018**	
☐ Quality Assurance Reports		
☐ Planning Document		
☐ Proposal Information		
☐ Lab SOW and Pricing		

ACTION CODE FOR RECIPIENT:

☒ For Recipient Use
☐ Revise and Resubmit to Preparer
☐ No exception taken
☐ Revise as noted

PREPARER SIGNATURE

PREPARER COMMENTS:

The package consists of two soil TPDES samples and a field duplicate (FD) collected at Lackland AFB on December 13, 2018. The attached chain-of-custody forms present a summary of the CAPE identification numbers, date of collection, sample matrix, and the analyses requested.

The samples were analyzed for the following methods:

- Total Metals by SW-846 Methods 6020B/7471B,
- Sodium Absorption Ration / Soluble Salts by Method LDNR 29-B,
- Nitrate/Nitrite by EPA Method 353.2,
- pH by SW-846 Method 9045D,
- Specific Conductance by Method SM2510 B-2011,
- Total Kjeldahl Nitrogen by Method SM4500 N and
- Plant-Available Nutrients by Method Mehlich III.

A report in accordance with DOD QSM 5.0 was provided by the laboratory. The plant-available nutrients (including forms of nitrogen) methods were performed by Waypoint Analytical., Memphis, Tennessee.

For metals, the matrix spike/matrix spike duplicate (MS/MSD) was performed on Sample T04TPDES701. Arsenic, barium, chromium, copper, lead, manganese, nickel, selenium and zinc failed the percent recovery (%R) criteria. Selenium was diluted out in the sample and no qualification of Selenium was required. Test results were not applicable for barium and manganese as the spiking level was inappropriate for the native concentration in the soil. The other six metals (arsenic, chromium, copper, lead, nickel and zinc) all had high recovery and were qualified "M" in detected results. Nondetect results did not require qualification as the outliers indicated high bias to concentrations.

Barium, manganese and zinc were detected at trace levels in the blank analyses for these analyses. The concentrations were low enough relative to the sample concentrations that the effect on data quality was negligible and data were not qualified based on professional judgement.

A serial dilution outlier was found for nickel, but the nickel results were previously qualified "M" so no "J" qualifier was applied.

The subcontract laboratory's reports indicated magnesium and/or calcium carbonate levels in the soil sufficient to result in interferences in the cation exchange capacity and absorption ratios, which should be considered estimated as a result. The CEC and absorption ratio values have been qualified "J" (estimated).

Sample T04TPDES705 is a FD of Sample T04TPDES704. Compounds met the CAPE 100 RPD criteria for FDs on soil samples except for lead, with RPD of 122, and sodium absorption ratio, which was nondetect in the parent and significant in the field duplicate (RPD = 200). Both of these results were previously qualified for other QC outliers.

Consistent with previous site data, results reported less than the Limit of Quantitation (LOQ) are qualified "F". Non-detected results were reported at the Limit of Detection (LOD) with a "U" qualifier.

Please see the attached data for your use and review. Note the data has undergone a data quality assessment and evaluation for the intended purpose of **Annual TPDES Soil Sampling** only.

Enclosed results are Approved for Quality Assurance Release by: Albert Iannacone, February 4, 2019.

ATTACHMENT 1

CHAIN OF CUSTODY FORMS

Client ID: 4484 - CAPE Environmental
SDG: 218121437
PM: EPM

CAPE ENVIRONMENTAL MANAGEMENT INC
404 E. Ramsey, Suite 206
SAN ANTONIO, TX 78247

CHAIN-OF-CUS

☐ Urgent
☐ EMERGENCY

Chain of Custody Number T04TPDES7	**Project Manager (Print)** Travis Tucker	**CAPE Project Manager (Print)** Terry Watkins	**Laboratory** GCAL
Contractor CAPE	**Project Name** PBR at JBSA-LAK	**Sampler's Name (Print)** Seth Moorehead Laurie Miller	**Laboratory Contract Number**
ERPIMS Yes X No ___	**Site(s)** PBR TPDES Soil Sampling 2018	**Sampler's Signature**	**ANALYSES REQUESTED**

Sample Number LNNNNNNN	Station Number LLNNNLLNNN	Sample Type (E-21) See VVL	Sample Matrix (E-17) See VVL	Sample Method (E-23) See VVL	Begin Depth NN.N	End Depth NN.N	Date dd mmm yy NN LLL NN	Time 24 HR NNNN	Field Lot Number NNNL	Number of Contain. N	pH	TKN	Nitrate-nitrogen	Total nitrogen	SAR	K,P,Ca,Mg,S, and Na	Conductivity	Total Metals: As, Ba, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, and Zn	See Notes
T04TPDES701	LF2829SO01	N1	SO	CS	0	6'	13 DEC 18	0901	000A	6	X	X	X	X	X	X	X	X	1,2,3,4
T04TPDES702	LF1113SO02	N1	SO	CS	0	6"	13 DEC 18	0955	000A	2	X	X	X	X	X	X	X	X	1,2,3
T04TPDES703	Field QC	FD-1	SO	CS	0	6"	13 DEC 18	0955	000A	2	X	X	X	X	X	X	X	X	1,2,3
					--	--													
					--	--													
					--	--													
					--	--													
					--	--													

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
	13 DEC 18 1400		
Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
Fed Ex	12-14-18 1000	David Hayden	12-14-18 1000
Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time

PROTOCOL (circle one)
HAZWRAP (EPA) OTHER
QC LEVEL (circle one)
1 2 (3) 4 5

FOR LABORATORY USE ONLY
CONDITIONS OF SAMPLES UPON RECEIPT

CHAIN OF CUSTODY	Y	N	ICE	
REQUEST FOR ANAL	Y	N	TEMP	
CUSTODY SEAL	Y	N	pH	

SAMPLE CONDITION
0.6°C E29 34CPM

Sample Shipped Via (circle one):
UPS (FED-EX) AIRBORNE BUS HAND OTHER

Waybill Number: 7844-0313-9807

REMARKS (Notes):
1) TKN = Total Kjeidahl Nitrogen
2) 30 TAC 319.22 Detection Limits
3) Analyze for the water soluble Ca, Mg and Na and report in mg/L as well as mg/kg
4) Run the MATRIX SPIKE / MATRIX SPIKE DUPLICATE on: T04TPDES701

SAMPLE RECEIVING CHECKLIST

218121437

SAMPLE DELIVERY GROUP 218121437	
Client **PM** EPM 4484 - CAPE Environmental	**Transport Method** FEDEX
Profile Number 273013	**Received By** Haydel, Daria L.
Line Item(s) 1 - TPDES Soil JBSA	**Receive Date(s)** 12/14/18

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by GCAL?	☑	☐

COOLERS

Airbill	Thermometer ID: E29	Temp °C
7844-0313-9807		0.6

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

GCAL
ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Drive | Baton Rouge, LA 70820-7402
225.769.4900 | www.gcal.com

CHAIN OF CUSTODY RECORD

GCAL USE ONLY

Submitted To:
Client: WayPoint Analytical
Address: 2790 Whitten Road
Memphis, TN 38133
Contact:
Phone: 901-213-2400
Email: support@waypointanalytical.com

Report/Bill To:
Client: GCAL Analytical Laboratories
Address: 7979 Innovation Park Drive
Baton Rouge, LA 70820
Contact: Liz Martin
Phone:
Email: subcontract-data@gcal.com

Custody Seal:
Used: ☐ Yes ☐ No
Intact: ☐ Yes ☐ No
Temperature:

☐ Dissolved Analysis Requested
☐ Field Filtered
☐ Lab Filtered

P.O. Number: 218121437
Project Name/Number: **PBR at JBSA-LAK**
Sampled By:

Analytical Requests & Method

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No. of Containers	Plant Available P, K, Ca, Mg, Na, S	TKN	Total Nitrogen	Nitrate/Nitrite	← Preservative / Notes ↓	GCAL ID
S	12/13/18	901			T04TPDES701	1	X	X	X	X		
S	12/13/18	901			T04TPDES701 MS	1	X	X	X	X		
S	12/13/18	901			T04TPDES701 MSD	1	X	X	X	X		
S	12/13/18	955			T04TPDES702	1	X	X	X	X		
S	12/13/18	955			T04TPDES703	1	X	X	X	X		

Per Jimmy don't log in Total Nitrate

~~#~~ Ron like: 17-349-0670 per Donna Haydel

Air bill Number:

Requested Due Date: Tuesday, January 02, 2018

Relinquished by: (Signature)	Date/Time:	Received by: (Signature)
[signature]	12.17.18 1600	
Relinquished by: (Signature)	Date/Time:	Received by: (Signature)
Relinquished by: (Signature)	Date/Time:	Received by: (Signature)

18-352-0775
11680
12-18-2018
14:22:44
Gulf Coast Analytical Labs
PBR at JBS-LAK

Coolers / Containers

[1]Matrix: W = Water, S=Solid, L=Liquid, T=Tissue.

*- Requires prior approval, Rush charges may apply. We cannot accept verbal changes. Please email written changes to your GCAL Project Manager.

ATTACHMENT 2

DATA SUMMARY REPORTS

Performance Based Remediation (PBR) JBSA-LAK
TPDES Soil Samples Collected December 13, 2018

Sample Identification	**Project Action Levels**	**T04TPDES701**	**T04TPDES702**	**T04TPDES703**
Sample Location		**LF2829SO01**	**LF1113SO02**	**LF1113SO02**
Lab Identification		**21812143701**	**21812143704**	**21812143705**
Date Sampled		**12/13/2018**	**12/13/2018**	**12/13/2018**
Matrix		**Soil**	**Soil**	**Soil**
			Parent	**Field Duplicate**
Total Metals Method 6020A		***ug/Kg***	***ug/Kg***	***ug/Kg***
Arsenic	NA	**2,780 M**	**5,530 M**	**6,680 M**
Barium	NA	**46,100**	**63,600**	**113,000**
Cadmium	NA	**142 F**	**458 F**	**986**
Chromium	NA	**9,560 M**	**15,800 M**	**24,100 M**
Copper	NA	**5,050 M**	**10,800 M**	**18,400 M**
Lead	NA	**7,240 M**	**48,100 M**	**200,000 M**
Manganese	NA	**227,000**	**279,000**	**337,000**
Nickel	NA	**7,830 M**	**10,900 M**	**13,600 M**
Selenium	NA	242U	237U	263U
Silver	NA	242U	**208J**	**551**
Zinc	NA	**21,400 M**	**67,700 M**	**164,000 M**
Total Mercury Method 7471B		***mg/Kg***	***mg/Kg***	***mg/Kg***
Mercury	NA	0.0061U	**0.031**	**0.034**
Soluble Salts Method LDNR 29-B		***mg/L***	***mg/L***	***mg/L***
Calcium	NA	**2.64**	**4.07**	**3.41**
Magnesium	NA	**0.36**	**0.50**	**0.40**
Sodium	NA	**0.18**	**0.040 F**	**0.28**
Sodium Absorption Ratio Method LDNR 29-B				
Sodium Absorption Ratio (Unitless)	NA	**0.1 J**	0.0 UJ	**0.2 J**
Nitrate + Nitrite Method EPA 353.2		***mg/Kg***	***mg/Kg***	***mg/Kg***
Nitrate Nitrogen	NA	**2**	**3**	**4**
Total Nitrogen Method SM 4500-N / TKN+Nitrate as N		***mg/Kg***	***mg/Kg***	***mg/Kg***
Total Kjeldahl Nitrogen as N	NA	**616**	**1,920**	**2,130**
Total Nitrogen as N	NA	**618**	**1,923**	**2,134**
pH Method SW-846 9045D				
pH (pH Units)	NA	**8.26**	**8.17**	**8.02**
Conductivity Method SM 2510 B-2011		***umhos/cm***	***umhos/cm***	***umhos/cm***
Specific Conductance	NA	100U	100U	100U
Plant - Available Nutrients Method Mehlich III		***ppm***	***ppm***	***ppm***
Phosphorous (P)	NA	**8**	**44**	**39**
Potassium (K)	NA	**282**	**540**	**487**
Calcium (Ca)	NA	**19,656**	**12,272**	**17,729**
Magnesium (Mg)	NA	**318**	**235**	**231**
Sulfur (S)	NA	**18**	**17**	**18**
Sodium (Na)	NA	**45**	**47**	**76**

Notes:

ug/Kg-micrograms per Kilogram

mg/Kg- milligrams per Kilogram mg/L- milligrams per Liter

umho/cm- micromhos per centimeter

ppm-parts per million

J - Estimated result due to QC outlier

U - Result is not detected UJ - Result is not detected at an estimated reporting limit

F - Estimated results. Results is less than the reporting limit.

M- The concentration is estimated due to a matrix effect.

NA- Not Available

Bold result indicates positively detected value

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 Time: 0901	GCAL Sample ID:	21812143701
Matrix:	Solid % Solids: 82.64	Instrument ID:	HYDRA
Sample Amt:	.6 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1036
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Mercury	0.0061	mg/kg	U	0.0048	0.0061	0.012

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 Time: 0901	GCAL Sample ID:	21812143701
Matrix:	Solid % Solids: 82.64	Instrument ID:	ICPMS1
Sample Amt:	1.25 g	Lab File ID:	2181219C_MS1.b\024SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 1951
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	2780	ug/kg	M	121	242	484
Barium	46100	ug/kg		121	242	484
Cadmium	142	ug/kg	FJ	121	242	484
Chromium	9560	ug/kg	M	121	242	484
Copper	5050	ug/kg		121	242	484
Lead	7240	ug/kg		121	242	484
Manganese	227000	ug/kg		605	1210	2420
Nickel	7830	ug/kg	M	242	484	968
Selenium	242	ug/kg	UU	121	242	484
Silver	242	ug/kg	UU	121	242	484
Zinc	21400	ug/kg	M	2420	4840	9680

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 Time: 0901	GCAL Sample ID:	21812143701
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2029
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.10	Unitless	J	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 Time: 0901	GCAL Sample ID:	21812143701
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2029
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Calcium	2.64	mg/L		0.13	0.13	0.50
Magnesium	0.36	mg/L		0.025	0.025	0.10
Sodium	0.18	mg/L		0.025	0.025	0.10

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143704
Matrix:	Solid % Solids: 81.10	Instrument ID:	HYDRA
Sample Amt:	.5 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1041
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.031	mg/kg		0.0059	0.0074	0.015

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143704
Matrix:	Solid % Solids: 81.10	Instrument ID:	ICPMS1
Sample Amt:	1.3 g	Lab File ID:	2181219C_MS1.b\029SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 2017
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	5530	ug/kg	M	119	237	474
Barium	63600	ug/kg		119	237	474
Cadmium	458	ug/kg	FJ	119	237	474
Chromium	15800	ug/kg	M	119	237	474
Copper	10800	ug/kg		119	237	474
Lead	48100	ug/kg		119	237	474
Manganese	279000	ug/kg		593	1190	2370
Nickel	10900	ug/kg	M	237	474	948
Selenium	237	ug/kg	UU	119	237	474
Silver	208	ug/kg	FJ	119	237	474
Zinc	67700	ug/kg	M	2370	4740	9480

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143704
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2000
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.0	Unitless	UJ	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143704
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2000
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Calcium	4.07	mg/L		0.13	0.13	0.50
Magnesium	0.50	mg/L		0.025	0.025	0.10
Sodium	0.040	mg/L	F J	0.025	0.025	0.10

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143705
Matrix:	Solid % Solids: 75.92	Instrument ID:	HYDRA
Sample Amt:	.5 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1043
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.034	mg/kg		0.0063	0.0079	0.016

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143705
Matrix:	Solid % Solids: 75.92	Instrument ID:	ICPMS1
Sample Amt:	1.25 g	Lab File ID:	2181219C_MS1.b\030SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 2023
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	6680	ug/kg	M	132	263	527
Barium	113000	ug/kg		132	263	527
Cadmium	986	ug/kg		132	263	527
Chromium	24100	ug/kg	M	132	263	527
Copper	18400	ug/kg		132	263	527
Lead	200000	ug/kg		132	263	527
Manganese	337000	ug/kg		659	1320	2630
Nickel	13600	ug/kg	M	263	527	1050
Selenium	263	ug/kg	U	132	263	527
Silver	551	ug/kg		132	263	527
Zinc	164000	ug/kg	M	2630	5270	10500

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143705
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2005
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.20	Unitless	J	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 Time: 0955	GCAL Sample ID:	21812143705
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2005
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Calcium	3.41	mg/L		0.13	0.13	0.50
Magnesium	0.40	mg/L		0.025	0.025	0.10
Sodium	0.28	mg/L		0.025	0.025	0.10

FORM I - IN

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 0901	GCAL Sample ID:	21812143701
Matrix:	Solid	Instrument ID:	PH01
% Solids:	82.6408	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.26	pH UNITS		1.00	1.00	1.00

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 0955	GCAL Sample ID:	21812143704
Matrix:	Solid	Instrument ID:	PH01
% Solids:	81.1038	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.17	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 0955	GCAL Sample ID:	21812143705
Matrix:	Solid	Instrument ID:	PH01
% Solids:	75.9224	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.02	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES701
Collect Date:	12/13/18 0901	GCAL Sample ID:	21812143701
Matrix:	Solid	Instrument ID:	COND4
% Solids:	82.6408	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	100	umhos/cm	U U	100	100	100

FORM I - GENCHEM

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES702
Collect Date:	12/13/18 0955	GCAL Sample ID:	21812143704
Matrix:	Solid	Instrument ID:	COND4
% Solids:	81.1038	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	100	umhos/cm	U U	100	100	100

FORM I - GENCHEM

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121437	Client Sample ID:	T04TPDES703
Collect Date:	12/13/18 0955	GCAL Sample ID:	21812143705
Matrix:	Solid	Instrument ID:	COND4
% Solids:	75.9224	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	100	umhos/cm	U U	100	100	100

FORM I - GENCHEM

4 February 2019

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2790 Whitten Road, Memphis, TN 38133
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SOIL ANALYSIS

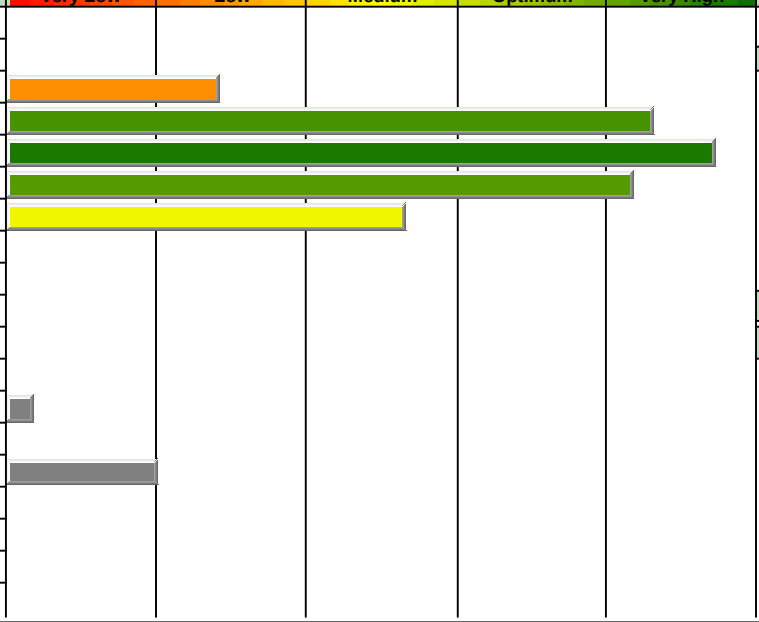
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
PBR at JBSA-LAK

Report No: 18-352-9775
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121437

Lab Number : 52495 **Field Id :** 12/13/18 901 **Sample Id :** T04TPDES701

Test	Method	Results
Soil pH	1:1	8.0
Buffer pH		
Phosphorus (P)	M3	8 ppm
Potassium (K)	M3	282 ppm
Calcium (Ca)	M3	19656 ppm
Magnesium (Mg)	M3	318 ppm
Sulfur (S)	M3	18 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	45 ppm
Soluble Salts		
Organic Matter	LOI	1.9% ENR 82
Nitrate Nitrogen	NO3N	2 ppm
Total N (Inorg+Org)		618 ppm
Total Kjeldahl Nitrogen		616 ppm



Calculated Cation Exchange Capacity
101.8 meq/100g

J

%Saturation

	%sat	meq
K	0.7	0.7
Ca	96.5	98.3
Mg	2.6	2.7
H	0.0	0.0
Na	0.2	0.2

K/Mg Ratio: 0.27
Ca/Mg Ratio: 37.12

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

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www.waypointanalytical.com

SOIL ANALYSIS

Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
PBR at JBSA-LAK

Report No: 18-352-9775
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121437

Lab Number : 52498 **Field Id :** 12/13/18 955 **Sample Id :** T04TPDES702

Test	Method	Results
Soil pH	1:1	8.0
Buffer pH		
Phosphorus (P)	M3	44 ppm
Potassium (K)	M3	540 ppm
Calcium (Ca)	M3	12272 ppm
Magnesium (Mg)	M3	235 ppm
Sulfur (S)	M3	17 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	47 ppm
Soluble Salts		
Organic Matter	LOI	4.3% ENR 130
Nitrate Nitrogen	NO3N	3 ppm
Total N (Inorg+Org)		1923 ppm
Total Kjeldahl Nitrogen		1920 ppm

SOIL TEST RATINGS: Very Low | Low | Medium | Optimum | Very High

Calculated Cation Exchange Capacity: **64.9** meq/100g J

%Saturation

	%sat	meq
K	2.1	1.4
Ca	94.5	61.4
Mg	3.0	2.0
H	0.0	0.0
Na	0.3	0.2

K/Mg Ratio: 0.71
Ca/Mg Ratio: 31.50

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

Waypoint ANALYTICAL
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SOIL ANALYSIS

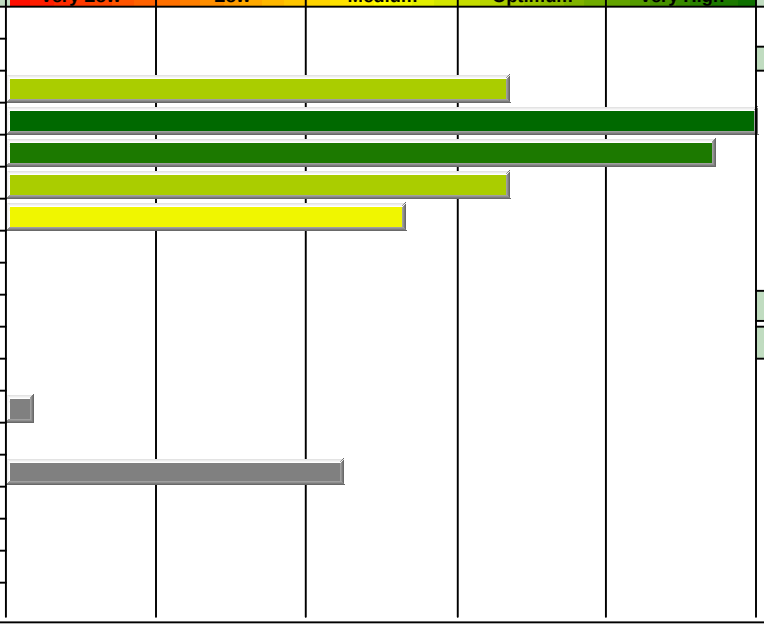
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
PBR at JBSA-LAK

Report No: 18-352-9775
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121437

Lab Number : 52499 **Field Id :** 12/13/18 955 **Sample Id :** T04TPDES703

Test	Method	Results
Soil pH	1:1	8.1
Buffer pH		
Phosphorus (P)	M3	39 ppm
Potassium (K)	M3	487 ppm
Calcium (Ca)	M3	17729 ppm
Magnesium (Mg)	M3	231 ppm
Sulfur (S)	M3	18 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	76 ppm
Soluble Salts		
Organic Matter	LOI	3.6% ENR 116
Nitrate Nitrogen	NO3N	4 ppm
Total N (Inorg+Org)		2134 ppm
Total Kjeldahl Nitrogen		2130 ppm



Calculated Cation Exchange Capacity
92.1 meq/100g

J

%Saturation

	%sat	meq
K	1.4	1.2
Ca	96.2	88.6
Mg	2.1	1.9
H	0.0	0.0
Na	0.4	0.3

K/Mg Ratio: 0.65
Ca/Mg Ratio: 45.81

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

DATA EVALUATION REPORT
CHEMISTRY SERVICES

DATE: February 4, 2019

RECIPIENT: Terry Watkins (twatkins@cape-inc.com)

PREPARER: Albert Iannacone (aiannacone@cape-inc.com)

COPY: chemistrysvcs@cape-inc.com

PROJECT #: 10010-0002-100-403

PROJECT NAME: Soil TPDES Samples, Joint Base San Antonio (JBSA) - LAK, Lackland Air Force Base

DESCRIPTION: Annual 2018 TPDES Soil Sampling – LTM Landfills

ITEMS SUBMITTED UNDER THIS TRANSMITTAL:

ITEM CLASSIFICATION	ITEM DESCRIPTION	# OF COPIES
☐ Original Analytical Data (Hardcopy/CD)		
☒ Lab Reports – Annotated Form 1s	**TPDES Soil Sampling, Gulf Coast Analytical Laboratories, LLC Baton Rouge, LA, SDG 218121438, Sampled December 14, 2018**	1
☐ EDDs		
☐ Quality Assurance Reports		
☐ Planning Document		
☐ Proposal Information		
☐ Lab SOW and Pricing		

ACTION CODE FOR RECIPIENT:

☒ For Recipient Use
☐ Revise and Resubmit to Preparer
☐ No exception taken
☐ Revise as noted

PREPARER SIGNATURE

PREPARER COMMENTS:

The package consists of three soil TPDES samples and a field duplicate (FD) collected at Lackland AFB on December 14, 2018. The attached chain-of-custody forms present a summary of the CAPE identification numbers, date of collection, sample matrix, and the analyses requested.

The samples were analyzed for the following methods:

- Total Metals by SW-846 Methods 6020B/7471B,
- Sodium Absorption Ration / Soluble Salts by Method LDNR 29-B,
- Nitrate/Nitrite by EPA Method 353.2,
- pH by SW-846 Method 9045D,
- Specific Conductance by Method SM2510 B-2011,
- Total Kjeldahl Nitrogen by Method SM4500 N and
- Plant-Available Nutrients by Method Mehlich III.

A report in accordance with DOD QSM 5.0 was provided by the laboratory. The plant-available nutrients (including forms of nitrogen) methods were performed by Waypoint Analytical., Memphis, Tennessee.

For metals, the matrix spike/matrix spike duplicate (MS/MSD) was performed on Sample T16TPDES01. Barium, chromium, copper, lead, manganese and selenium failed the percent recovery (%R) criteria. Selenium was diluted out in the sample and no qualification of selenium was required. Test results were not applicable for the remaining metals with outliers, as the spiking levels were inappropriate for the native concentrations in the soil.

Barium, manganese and zinc were detected at trace levels in the blank analyses for these analyses. The concentrations were low enough relative to the sample concentrations that the effect on data quality was negligible and data were not qualified based on professional judgement.

A serial dilution outlier was found for zinc, which was qualified "J" (estimated) as a result.

The subcontract laboratory's reports indicated magnesium and/or calcium carbonate levels in the soil sufficient to result in interferences in the cation exchange capacity (CEC) and absorption ratios, which should be considered estimated as a result. The CEC and absorption ratio values have been qualified "J."

Sample T16TPDES04 is a FD of Sample T16TPDES03. Compounds met the CAPE 100 RPD criteria for FDs on soil samples except for specific conductance, which was nondetect in the parent and significant in the field duplicate. These results were qualified "UJ" (nondetect at an estimated reporting limit) in the parent and "J" for the field duplicate as a result.

Consistent with previous site data, results reported less than the Limit of Quantitation (LOQ) are qualified "F". Non-detected results were reported at the Limit of Detection (LOD) with a "U" qualifier.

Please see the attached data for your use and review. Note the data has undergone a data quality assessment and evaluation for the intended purpose of **Annual TPDES Soil Sampling** only.

Enclosed results are Approved for Quality Assurance Release by: Albert Iannacone, February 4, 2019.

ATTACHMENT 1

CHAIN OF CUSTODY FORMS

Client ID: 4484 - CAPE Environmental
SDG: 218121438
PM: EPM

CAPE ENVIRONMENTAL MANAGEMENT INC
404 E. Ramsey, Suite 206
SAN ANTONIO, TX 78216

CHAIN-OF-CUS

☐ Urgent
☐ EMERGENCY

Chain of Custody Number T16TPDES03	**Project Manager (Print)** Travis Tucker	**CAPE Project Manager (Print)** Terry Watkins
Contractor CAPE	**Project Name** LTM-RAO at JBSA-LAK	**Sampler's Name (Print)** Seth Moorehead / Merle Miller
ERPIMS Yes X No ___	**Site(s)** LTM TPDES Soil Sampling 2018	**Sampler's Signature**

Laboratory GCAL
Laboratory Contract Number

ANALYSES REQUESTED

Sample Number LNNNNNNN	Station Number LLNNNLLNNN	Sample Type (E-21) See VVL	Sample Matrix (E-17) See VVL	Sample Method (E-23) See VVL	Begin Depth NN.N	End Depth NN.N	Date dd mmm yy NN LLL NN	Time 24 HR NNNN	Field Lot Number NNNL	Number of Contain. N	pH	TKN	Nitrate-nitrogen	Total nitrogen	SAR	K,P,Ca,Mg,S, and Na	Conductivity	Total Metals: As, Ba, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, and Zn	See Notses
																		01,02,03	
T16TPDES3001	LFTPDES001	N1	SO	CS	0	6"	13 DEC 18	1030	000A	6	X	X	X	X	X	X	X	X	1,2,3,4
T16TPDES3002	LFTPDES002	N1	SO	CS	0	6"	13 DEC 18	1120	000A	2	X	X	X	X	X	X	X	X 04	1,2,3
T16TPDES3003	LFTPDES003	N1	SO	CS	0	6"	13 DEC 18	1200	000A	2	X	X	X	X	X	X	X	X 05	1,2,3
T16TPDES3004	Field QC	FD1	SO	CS	0	6"	13 DEC 18	1200	000A	2	X	X	X	X	X	X	X	X 06	1,2,3
					--	--													
					--	--													
					--	--													
					--	--													

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
	13DEC18 1400		
Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
FedEx	12/14/18 1000	Tiffany Jones	12/14/18 1000
Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time

Sample Shipped Via (circle one):
UPS (FED-EX) AIRBORNE BUS HAND
OTHER

Waybill Number: 7844-0313-9807

PROTOCOL (circle one)
HAZWRAP (EPA) OTHER

QC LEVEL (circle one)
1 2 (3)

FOR LABORATORY USE ONLY
CONDITIONS OF SAMPLES UPON RECEIPT

CHAIN OF CUSTODY	Y	N	ICE	
REQUEST FOR ANAL	Y	N	TEMP	
CUSTODY SEAL	Y	N	pH	

SAMPLE CONDITION
1.0°C E29 30CPM

REMARKS (Notes):
1) TKN = Total Kjeidahl Nitrogen
2) 30 TAC 319.22 Detection Limits
3) Analyze for the water soluble Ca, Mg and Na and report in mg/L as well as mg/kg
4) Run the MATRIX SPIKE / MATRIX SPIKE DUPLICATE on: T16TPDES3001

SAMPLE RECEIVING CHECKLIST

218121438

SAMPLE DELIVERY GROUP 218121438	
Client **PM** EPM 4484 - CAPE Environmental	**Transport Method** FEDEX
Profile Number 273013	**Received By** Haydel, Daria L.
Line Item(s) 1 - TPDES Soil JBSA	**Receive Date(s)** 12/14/18

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by GCAL?	☑	☐

COOLERS

Airbill	Thermometer ID: E29	Temp °C
7844-0313-9807		1.0

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

CHAIN OF CUSTODY RECORD

GCAL USE ONLY

GCAL ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Drive | Baton Rouge, LA 70820-7402
225.769.4900 | www.gcal.com

Submitted To:
Client: WayPoint Analytical
Address: 2790 Whitten Road
Memphis, TN 38133
Contact:
Phone: 901-213-2400
Email: support@waypointanalytical.com

Report/Bill To:
Client: GCAL Analytical Laboratories
Address: 7979 Innovation Park Drive
Baton Rouge, LA 70820
Contact: Liz Martin
Phone:
Email: subcontract-data@gcal.com

P.O. Number: 218121438
Project Name/Number: **LTM-RAO**
Sampled By:

Custody Seal: Used: ☐ Yes ☐ No Intact: ☐ Yes ☐ No
Temperature: _____

☐ Dissolved Analysis Requested
☐ Field Filtered
☐ Lab Filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No. of Containers	Plant Available P, K, Ca, Mg, Na, S	TKN	Total Nitrogen	Nitrate/Nitrite	← Preservative / Notes ↓	GCAL ID
S	12/13/18	1030			T16TPDES3001	1	X	X	X	X		
S	12/13/18	1030			T16TPDES3001 MS	1	X	X	X	X		
S	12/13/18	1030			T16TPDES3001 MSD	1	X	X	X	X		
S	12/13/18	1120			T16TPDES3002	1	X	X	X	X		
S	12/13/18	1200			T16TPDES3003	1	X	X	X	X		
S	12/13/18	1200			T16TPDES3004	1	X	X	X	X		

Per Jimmy Don't run Total Nitrate

18-352-0776
11680
12-18-2018
14:28:40
Gulf Coast Analytical Labs
LTM-RAO

Air bill Number:

Requested Due Date: Tuesday, January 02, 2018

Relinquished by: (Signature)	Date/Time:	Received by: (Signature)	Date/Time:
	12.17.18 1600		
Relinquished by: (Signature)	Date/Time:	Received by: (Signature)	Date/Time:
Relinquished by: (Signature)	Date/Time:	Received by: (Signature)	Date/Time:

Notes: Blank Temp 3.8°C 156 KAT

Custody Seals received on: Coolers / Containers

[1]**Matrix: W = Water, S=Solid, L=Liquid, T=Tissue.**

*- Requires prior approval, Rush charges may apply.

We cannot accept verbal changes. Please email written changes to your GCAL Project Manager.

ATTACHMENT 2

DATA SUMMARY REPORTS

LTM-RAO
TPDES Soil Samples Collected December 13, 2018

Sample Identification	Project Action Levels	T16TPDES3001	T16TPDES3002	T16TPDES3003	T16TPDES3004
Sample Location		LFTPDES001	LFTPDES002	LFTPDES003	LFTPDES003
Lab Identification		21812143801	21812143804	21812143805	21812143806
Date Sampled		12/13/2018	12/13/2018	12/13/2018	12/13/2018
Matrix		Soil	Soil	Soil	Soil
				Parent	Field Duplicate
Total Metals Method 6020B		*ug/Kg*	*ug/Kg*	*ug/Kg*	*ug/Kg*
Arsenic	NA	**7,640**	**4,730**	**7,160**	**6,930**
Barium	NA	**82,200**	**81,100**	**81,300**	**85,200**
Cadmium	NA	**421 F**	**638**	**778**	**669**
Chromium	NA	**21,300**	**19,800**	**21,700**	**23,700**
Copper	NA	**10,400**	**8,900**	**14,800**	**15,300**
Lead	NA	**26,200**	**23,000**	**27,200**	**25,500**
Manganese	NA	**332,000**	**330,000**	**499,000**	**519,000**
Nickel	NA	**13,400**	**12,400**	**14,900**	**15,900**
Selenium	NA	250U	227U	250U	248U
Silver	NA	**135 F**	**212 F**	**389 F**	**417 F**
Zinc	NA	**54,100 J**	**42,700 J**	**51,700 J**	**58,800 J**
Total Mercury Method 7471B		*mg/Kg*	*mg/Kg*	*mg/Kg*	*mg/Kg*
Mercury	NA	**0.020**	**0.053**	**0.055**	**0.044**
Soluble Salts Method LDNR 29-B		*mg/L*	*mg/L*	*mg/L*	*mg/L*
Calcium	NA	**4.65**	**3.64**	**4.32**	**3.88**
Magnesium	NA	**0.60**	**0.36**	**0.44**	**0.43**
Sodium	NA	**0.080 F**	**0.26**	**0.060 F**	**0.060 F**
Sodium Absorption Ratio Method LDNR 29-B					
Sodium Absorption Ratio (Unitless)	NA	0.0 UJ	**0.2 J**	0.0 UJ	0.0 UJ
Nitrate + Nitrite Method EPA 353.2		*mg/Kg*	*mg/Kg*	*mg/Kg*	*mg/Kg*
Nitrate Nitrogen	NA	**3.0**	**3.0**	**3.0**	**3.0**
Total Nitrogen Method SM 4500-N / TKN+Nitrate as N		*mg/Kg*	*mg/Kg*	*mg/Kg*	*mg/Kg*
Total Kjeldahl Nitrogen as N	NA	**1,600**	**1,220**	**1,590**	**1,540**
Total Nitrogen as N	NA	**1,603**	**1,223**	**1,593**	**1,543**
pH Method SW-846 9045D					
pH (pH Units)	NA	**8.06**	**7.99**	**8.14**	**8.06**
Conductivity Method SM 2510 B-2011		*umhos/cm*	*umhos/cm*	*umhos/cm*	*umhos/cm*
Specific Conductance	NA	100U	**103**	100U	**107**
Plant - Available Nutrients Method Mehlich III		*ppm*	*ppm*	*ppm*	*ppm*
Phosphorous (P)	NA	**18**	**8**	**18**	**19**
Potassium (K)	NA	**411**	**367**	**603**	**548**
Calcium (Ca)	NA	**19,823**	**14,912**	**12,399**	**12,376**
Magnesium (Mg)	NA	**264**	**225**	**242**	**237**
Sulfur (S)	NA	**20**	**20**	**14**	**16**
Sodium (Na)	NA	**70**	**53**	**38**	**39**

Notes:

ug/Kg-micrograms per Kilogram

mg/Kg- milligrams per Kilogram mg/L - milligrams per Liter

umho/cm- micromhos per centimeter

ppm-parts per million

U - Result is not detected

F - Estimated results. Results is less than the reporting limit.

M- The concentration is estimated due to a matrix effect.

NA- Not Available

Bold result indicates positively detected value

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INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 Time: 1030	GCAL Sample ID:	21812143801
Matrix:	Solid % Solids: 80.09	Instrument ID:	HYDRA
Sample Amt:	.6 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1045
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.020	mg/kg		0.0050	0.0062	0.012

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 Time: 1030	GCAL Sample ID:	21812143801
Matrix:	Solid % Solids: 80.09	Instrument ID:	ICPMS1
Sample Amt:	1.25 g	Lab File ID:	2181219C_MS1.b\031SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 2028
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	7640	ug/kg		125	250	499
Barium	82200	ug/kg		125	250	499
Cadmium	421	ug/kg	F J	125	250	499
Chromium	21300	ug/kg		125	250	499
Copper	10400	ug/kg		125	250	499
Lead	26200	ug/kg		125	250	499
Manganese	332000	ug/kg		624	1250	2500
Nickel	13400	ug/kg		250	499	999
Selenium	250	ug/kg	U U	125	250	499
Silver	135	ug/kg	F J	125	250	499
Zinc	54100	ug/kg	J	2500	4990	9990

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 Time: 1030	GCAL Sample ID:	21812143801
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2010
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.0	Unitless	UJ	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 Time: 1030	GCAL Sample ID:	21812143801
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2010
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Calcium	4.65	mg/L		0.13	0.13	0.50
Magnesium	0.60	mg/L		0.025	0.025	0.10
Sodium	0.080	mg/L	F	0.025	0.025	0.10

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 Time: 1120	GCAL Sample ID:	21812143804
Matrix:	Solid % Solids: 80.25	Instrument ID:	HYDRA
Sample Amt:	.54 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1055
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.053	mg/kg		0.0055	0.0069	0.014

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 Time: 1120	GCAL Sample ID:	21812143804
Matrix:	Solid % Solids: 80.25	Instrument ID:	ICPMS1
Sample Amt:	1.37 g	Lab File ID:	2181219C_MS1.b\036SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 2054
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	4730	ug/kg		114	227	455
Barium	81100	ug/kg		114	227	455
Cadmium	638	ug/kg		114	227	455
Chromium	19800	ug/kg		114	227	455
Copper	8900	ug/kg		114	227	455
Lead	23000	ug/kg		114	227	455
Manganese	330000	ug/kg		568	1140	2270
Nickel	12400	ug/kg		227	455	909
Selenium	227	ug/kg	U	114	227	455
Silver	212	ug/kg	F	114	227	455
Zinc	42700	ug/kg	J	2270	4550	9090

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 Time: 1120	GCAL Sample ID:	21812143804
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2014
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.20	Unitless	J	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 Time: 1120	GCAL Sample ID:	21812143804
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2014
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Calcium	3.64	mg/L		0.13	0.13	0.50
Magnesium	0.36	mg/L		0.025	0.025	0.10
Sodium	0.26	mg/L		0.025	0.025	0.10

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143805
Matrix:	Solid % Solids: 79.86	Instrument ID:	HYDRA
Sample Amt:	.51 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1057
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.055	mg/kg		0.0059	0.0074	0.015

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143805
Matrix:	Solid % Solids: 79.86	Instrument ID:	ICPMS1
Sample Amt:	1.25 g	Lab File ID:	2181219C_MS1.b\037SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/19/18 Time: 2059
Prep Batch:	650068	Analytical Batch:	650417
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	7160	ug/kg		125	250	501
Barium	81300	ug/kg		125	250	501
Cadmium	778	ug/kg		125	250	501
Chromium	21700	ug/kg		125	250	501
Copper	14800	ug/kg		125	250	501
Lead	27200	ug/kg		125	250	501
Manganese	499000	ug/kg		626	1250	2500
Nickel	14900	ug/kg		250	501	1000
Selenium	250	ug/kg	U	125	250	501
Silver	389	ug/kg	F	125	250	501
Zinc	51700	ug/kg	J	2500	5010	10000

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143805
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2019
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Sodium Absorption Ratio	0.0	Unitless	UJ	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143805
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2019
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Calcium	4.32	mg/L		0.13	0.13	0.50
Magnesium	0.44	mg/L		0.025	0.025	0.10
Sodium	0.060	mg/L	F J	0.025	0.025	0.10

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143806
Matrix:	Solid % Solids: 80.03	Instrument ID:	HYDRA
Sample Amt:	.54 g	Lab File ID:	HYDRA
Prep Vol.:	30 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	12/17/18 Time: 1059
Prep Batch:	650069	Analytical Batch:	650120
Prep Method:	7471B Prep	Analytical Method:	EPA 7471B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Mercury	0.044	mg/kg		0.0056	0.0069	0.014

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143806
Matrix:	Solid % Solids: 80.03	Instrument ID:	ICPMS1
Sample Amt:	1.26 g	Lab File ID:	2190102A_MS1.b\2190112SMPL.d
Prep Vol.:	50 (mL)	Dilution Factor:	10 Analyst: LWZ
Prep Date:	12/16/18	Analysis Date:	01/02/19 Time: 1620
Prep Batch:	650068	Analytical Batch:	651082
Prep Method:	3050B	Analytical Method:	EPA 6020B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Arsenic	6930	ug/kg		124	248	496
Barium	85200	ug/kg		124	248	496
Cadmium	669	ug/kg		124	248	496
Chromium	23700	ug/kg		124	248	496
Copper	15300	ug/kg		124	248	496
Lead	25500	ug/kg		124	248	496
Manganese	519000	ug/kg		620	1240	2480
Nickel	15900	ug/kg		248	496	992
Selenium	248	ug/kg	U U	124	248	496
Silver	417	ug/kg	F J	124	248	496
Zinc	58800	ug/kg	J	2480	4960	9920

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143806
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2024
Prep Batch:	650415	Analytical Batch:	650680
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Sodium Absorption Ratio	0.0	Unitless	UJ	0.0	0.0	0.0

FORM I - IN

4 February 2019

I

INORGANIC ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 Time: 1200	GCAL Sample ID:	21812143806
Matrix:	Solid % Solids: NA	Instrument ID:	ICPMS1
Sample Amt:	25 g	Lab File ID:	
Prep Vol.:	25 (mL)	Dilution Factor:	1 Analyst: LWZ
Prep Date:	12/20/18	Analysis Date:	12/24/18 Time: 2024
Prep Batch:	650415	Analytical Batch:	650679
Prep Method:	29B 1:1 Extracti	Analytical Method:	LDNR 29-B

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Calcium	3.88	mg/L		0.13	0.13	0.50
Magnesium	0.43	mg/L		0.025	0.025	0.10
Sodium	0.060	mg/L	F J	0.025	0.025	0.10

FORM I - IN

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 1030	GCAL Sample ID:	21812143801
Matrix:	Solid	Instrument ID:	PH01
% Solids:	80.0933	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.06	pH UNITS		1.00	1.00	1.00

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 1120	GCAL Sample ID:	21812143804
Matrix:	Solid	Instrument ID:	PH01
% Solids:	80.2578	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	7.99	pH UNITS		1.00	1.00	1.00

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 1200	GCAL Sample ID:	21812143805
Matrix:	Solid	Instrument ID:	PH01
% Solids:	79.8664	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.14	pH UNITS		1.00	1.00	1.00

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 1200	GCAL Sample ID:	21812143806
Matrix:	Solid	Instrument ID:	PH01
% Solids:	80.0371	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	12/15/18 1107
Prep Batch:	NA	Analytical Batch:	650081
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.06	pH UNITS		1.00	1.00	1.00

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3001
Collect Date:	12/13/18 1030	GCAL Sample ID:	21812143801
Matrix:	Solid	Instrument ID:	COND4
% Solids:	80.0933	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	100	umhos/cm	U U	100	100	100

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3002
Collect Date:	12/13/18 1120	GCAL Sample ID:	21812143804
Matrix:	Solid	Instrument ID:	COND4
% Solids:	80.2578	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	103	umhos/cm		100	100	100

4 February 2019

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3003
Collect Date:	12/13/18 1200	GCAL Sample ID:	21812143805
Matrix:	Solid	Instrument ID:	COND4
% Solids:	79.8664	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	100	umhos/cm	~~U~~ UJ	100	100	100

FORM I - GENCHEM

4 February 2019

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	218121438	Client Sample ID:	T16TPDES3004
Collect Date:	12/13/18 1200	GCAL Sample ID:	21812143806
Matrix:	Solid	Instrument ID:	COND4
% Solids:	80.0371	Analyst:	RYC
Sample Amt:	10 g	Lab File ID:	NA
Prep Vol.:	100 mL	Dilution Factor:	1
Prep Date:	01/04/19 1600	Analysis Date:	01/07/19 0915
Prep Batch:	651281	Analytical Batch:	651310
Prep Method:	SM 2510B	Analytical Method:	SM 2510B

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Specific Conductance	107	umhos/cm	J	100	100	100

4 February 2019

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SOIL ANALYSIS

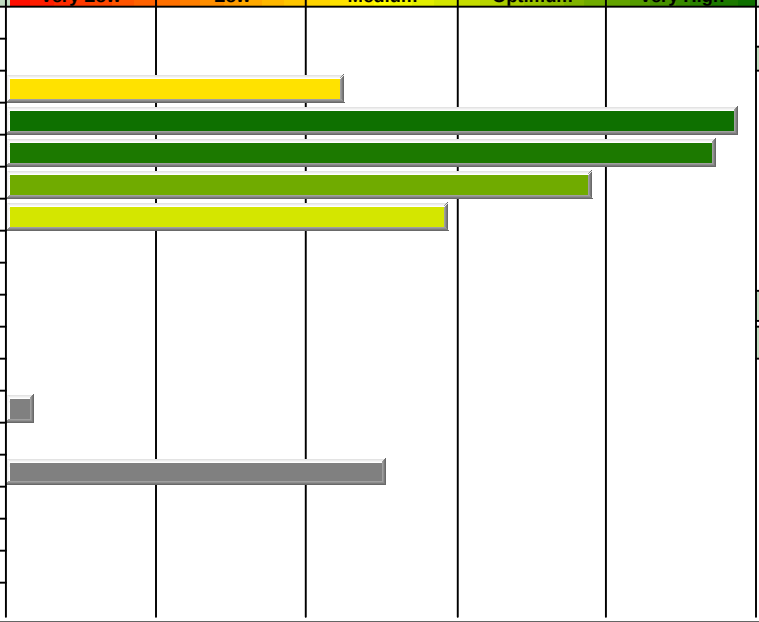
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
LTM-RAO

Report No: 18-352-9776
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121438

Lab Number : 52500 **Field Id :** 12/13/18 1030 **Sample Id :** T16TPDES3001

Test	Method	Results
Soil pH	1:1	8.0
Buffer pH		
Phosphorus (P)	M3	18 ppm
Potassium (K)	M3	411 ppm
Calcium (Ca)	M3	19823 ppm
Magnesium (Mg)	M3	264 ppm
Sulfur (S)	M3	20 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	70 ppm
Soluble Salts		
Organic Matter	LOI	4.1% ENR 126
Nitrate Nitrogen	NO3N	3 ppm
Total N (Inorg+Org)		1603 ppm
Total Kjeldahl Nitrogen		1600 ppm



Calculated Cation Exchange Capacity
102.7 meq/100g

J

%Saturation

	%sat	meq
K	1.0	1.1
Ca	96.5	99.1
Mg	2.1	2.2
H	0.0	0.0
Na	0.3	0.3

K/Mg Ratio: 0.48
Ca/Mg Ratio: 45.95

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

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SOIL ANALYSIS

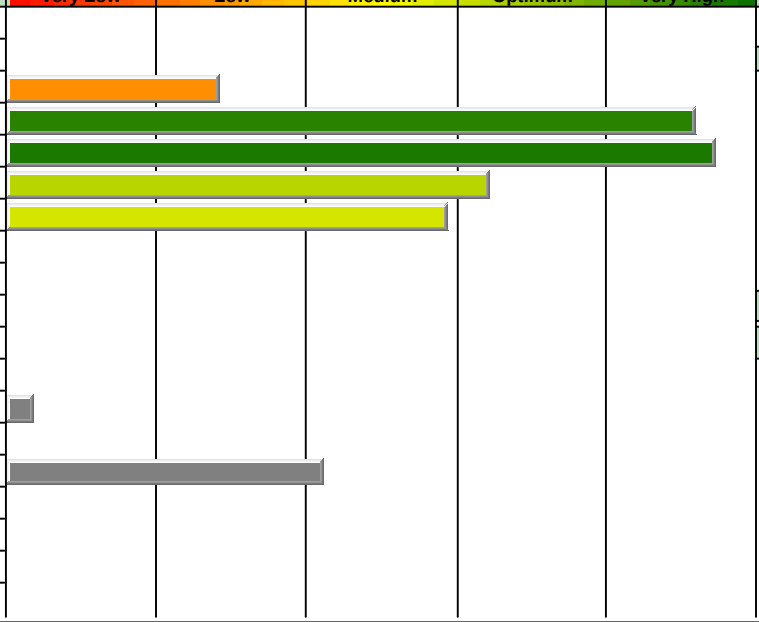
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
LTM-RAO

Report No: 18-352-9776
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121438

Lab Number : 52504 **Field Id :** 12/13/18 1120 **Sample Id :** T16TPDES3002

Test	Method	Results
Soil pH	1:1	8.0
Buffer pH		
Phosphorus (P)	M3	8 ppm
Potassium (K)	M3	367 ppm
Calcium (Ca)	M3	14912 ppm
Magnesium (Mg)	M3	225 ppm
Sulfur (S)	M3	20 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	53 ppm
Soluble Salts		
Organic Matter	LOI	3.3% ENR 110
Nitrate Nitrogen	NO3N	3 ppm
Total N (Inorg+Org)		1223 ppm
Total Kjeldahl Nitrogen		1220 ppm



Calculated Cation Exchange Capacity
77.6 meq/100g

%Saturation	%sat	meq
K	1.2	0.9
Ca	96.1	74.6
Mg	2.4	1.9
H	0.0	0.0
Na	0.3	0.2

K/Mg Ratio: 0.50
Ca/Mg Ratio: 40.04

J

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

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SOIL ANALYSIS

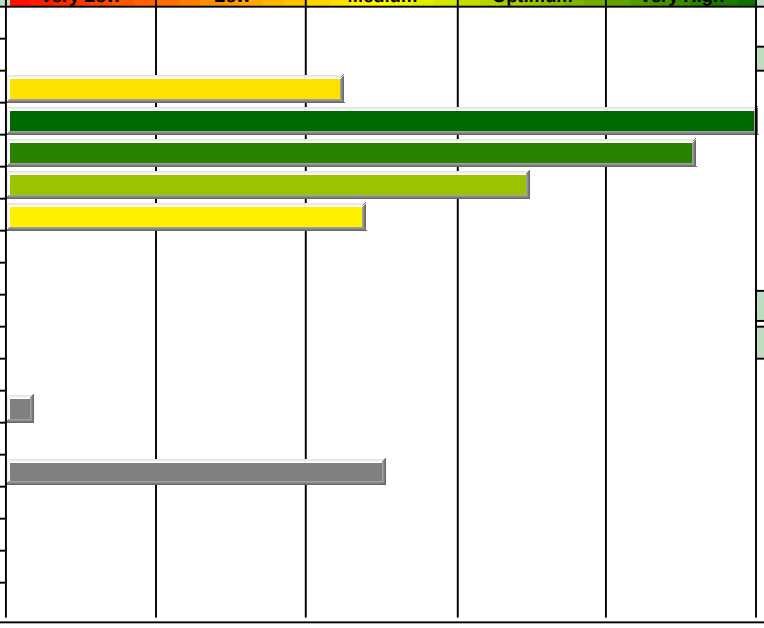
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
LTM-RAO

Report No: 18-352-9776
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121438

Lab Number : 52505 **Field Id :** 12/13/18 1200 **Sample Id :** T16TPDES3003

Test	Method	Results
Soil pH	1:1	8.1
Buffer pH		
Phosphorus (P)	M3	18 ppm
Potassium (K)	M3	603 ppm
Calcium (Ca)	M3	12399 ppm
Magnesium (Mg)	M3	242 ppm
Sulfur (S)	M3	14 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	38 ppm
Soluble Salts		
Organic Matter	LOI	4.2% ENR 128
Nitrate Nitrogen	NO3N	3 ppm
Total N (Inorg+Org)		1593 ppm
Total Kjeldahl Nitrogen		1590 ppm



Calculated Cation Exchange Capacity
65.7 meq/100g

J

%Saturation

	%sat	meq
K	2.4	1.5
Ca	94.4	62.0
Mg	3.1	2.0
H	0.0	0.0
Na	0.3	0.2

K/Mg Ratio: 0.77
Ca/Mg Ratio: 30.45

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

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SOIL ANALYSIS

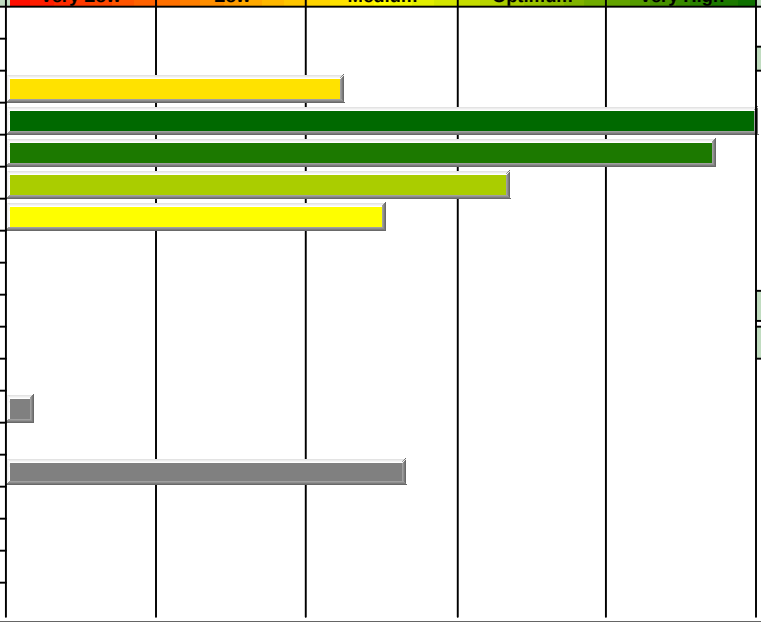
Client :
Gulf Coast Analytical Labs
Ms. Daria Haydel
7979 GSRI Avenue
Baton Rouge LA 70820

Grower :
LTM-RAO

Report No: 18-352-9776
Cust No: 11680
Date Printed: 01/25/2019
Date Received : 12/18/2018
PO: 218121438

Lab Number : 52506 **Field Id :** 12/13/18 1200 **Sample Id :** T16TPDES3004

Test	Method	Results
Soil pH	1:1	8.0
Buffer pH		
Phosphorus (P)	M3	19 ppm
Potassium (K)	M3	548 ppm
Calcium (Ca)	M3	12376 ppm
Magnesium (Mg)	M3	237 ppm
Sulfur (S)	M3	16 ppm
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	39 ppm
Soluble Salts		
Organic Matter	LOI	4.3% ENR 130
Nitrate Nitrogen	NO3N	3 ppm
Total N (Inorg+Org)		1543 ppm
Total Kjeldahl Nitrogen		1540 ppm



Calculated Cation Exchange Capacity
65.4 meq/100g

J

%Saturation

	%sat	meq
K	2.1	1.4
Ca	94.6	61.9
Mg	3.0	2.0
H	0.0	0.0
Na	0.3	0.2

K/Mg Ratio: 0.71
Ca/Mg Ratio: 31.53

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

Due to the magnesium and/or calcium carbonate levels in the soil, the calculated CEC and cation saturation percentages may not be accurately estimated. If you have questions, please call the lab.

4 February 2019

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

Tabulated Lackland AFB Soil Sample Results
December 2018

Composites from 0-6"	Date Sampled	Specific Conductance (µmhos/cm)	Sulphur, total elemental (mg/kg)	Nitrogen, total [as N] (mg/kg)	Nitrogen, Kjeldahl, total [as N] (mg/kg)	Nitrite + Nitrate total [as N] (mg/kg)	Phosphorus, total [as P] (mg/kg)	Calcium, dissolved [as Ca] (mg/L)	Calcium, total [as Ca] (mg/kg)	Magnesium, dissolved [as Mg] (mg/L)	Magnesium, total [as Mg] (mg/kg)	Sodium, total [as Na] (mg/kg)	Sodium, dissolved [as Na] (mg/L)	Sodium absorption ratio (ratio)	Potassium, total [as K] (mg/kg)	Arsenic, dry weight (mg/kg)	Barium, total [as Ba] (mg/kg)	Manganese in bottom deposits [dry wgt] (mg/kg)	Silver, total [as Ag] (mg/kg)	Selenium, dry weight (mg/kg)	Copper, dry weight (mg/kg)	Cadmium, dry weight (mg/kg)	Zinc, sludge, total, dry weight [as Zn] (mg/kg)	Lead, sludge, total, dry weight [as Pb] (mg/kg)	Nickel, sludge, total, dry weight [as Ni] (mg/kg)	Mercury, sludge total dry weight [as Hg] (mg/kg)	Chromium, sludge, total dry weight [as Cr] (mg/kg)	pH, in soil (SU)
T04TPDES701	13-Dec-18	100 U	18	618	616	2.00	8	2.6	19,656	0.36	318	45	0.18	0.1 J	282	2.780 M	46.1	227	0.242 U	0.242 U	5.050 M	0.142 F	21.4 M	7.24 M	7.83	0.0061 U	9.56 M	8.26
T04TPDES702	13-Dec-18	100 U	17	1,923	1,920	3.00	44	4.1	12,272	0.5	235	47	0.040 F	0.0 UJ	540	5.530 M	63.6	279	0.208 J	0.237 U	10.8 M	0.458 F	67.7 M	48.1 M	10.9	0.031	15.8 M	8.17
T16TPDES3001	13-Dec-18	100 U	20	1,603	1,600	3.00	18	4.7	19,823	0.6	264	70	0.080 F	0 UJ	411	7.64	82.2	332	0.135 F	0.250 U	10.4	0.421 F	54.1 J	26.2	13.4	0.02	21.3	8.06
T16TPDES3002	13-Dec-18	103	20	1,223	1,220	3.00	8	3.6	14,912	0.36	225	53	0.26	0.2 J	367	4.73	81.1	330	0.212 F	0.227 U	8.9	0.638	42.7 J	23	12.4	0.053	19.8	7.99
T16TPDES3003	13-Dec-18	100 U	14	1,593	1,590	3.00	18	4.3	12,399	0.44	242	38	0.060 F	0 UJ	603	7.16	81.3	499	0.389 F	0.250 U	14.8	0.778	51.7 J	27	13.9	0.055	21.7	8.14
Maximum recorded on NetDMR		210	17	5,620	5,620	10.5	99	259	17,992	16.0	350	37	49.9	0.80	596	7.22	92.2	358	0.465	< 0.310	21.0	1.60	206	101	13.0	0.084	48.2	8.42

Notes:

µmhos/cm - micromhos per centimeter
AFB - Air Force Base
DMR - discharge monitoring report
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
SU - standard unit

F - Estimated results. Result is less than the reporting limit.
J - The concentration or detection limit is estimated.
M - The concentration is estimated due to a matrix effect.
U - Result is not detected.
Shading indicates this reading is the maximum on record.

Attachment 9

GW Monitoring Wells

Attachment 9 – Groundwater Technical Report for Irrigation Areas

The 30 TAC § 309.20(a)(4) requirements were used as guidance for this report. Please note that the effluent being treated and used for irrigation is not sanitary sewer water and specific requirements for the application of treated sewage do not apply.

Groundwater

Shallow groundwater exists under the landfills that are being irrigated and is being monitored as part of the RCRA Permit and Compliance Plan No. 50310 requirements. The shallow groundwater was contaminated by former operations, and until it meets the groundwater protection standards set forth in the RCRA Permit/Compliance Plan, annual monitoring will continue.

Near-surface groundwater at the former Kelly AFB, known as the alluvial aquifer, is present in the lower portion of the brown clay and/or the underlying coarser-grained deposits overlying the Navarro clay. Soil boring and monitoring well data suggest that the shallow, coarse-grained alluvial aquifer is highly variable. Not only are the aquifer materials heterogeneous, but the thickness of the materials varies greatly, from a thin veneer underlying some portions of the site to approximately 10-feet-thick southwest of the base. The Navarro clay has a vertical hydraulic conductivity in the range of 5.2×10^{-7} to 1.5×10^{-9} centimeters per second and acts as an aquitard separating the alluvial aquifer from the underlying formations. Thus, shallow groundwater under the irrigation areas is not used for drinking water, and there are no public drinking water wells within ½-mile of the irrigation areas.

The surficial, alluvial aquifer is not utilized as a drinking water source on the former Kelly AFB. The City of San Antonio has a public water supply in the areas surrounding the former Kelly AFB. The City Code of San Antonio, Part II-Code, Chapter 34—Water and Sewers, Article II—Water Service and Rates, Division 2—City Water Service, Section 34-36, requires connection to the public water supply line unless there is a supply of water from an approved well more than 100 feet deep. One hundred feet deep is below the surficial aquifer; thus, the surficial aquifer is not used for drinking water purposes.

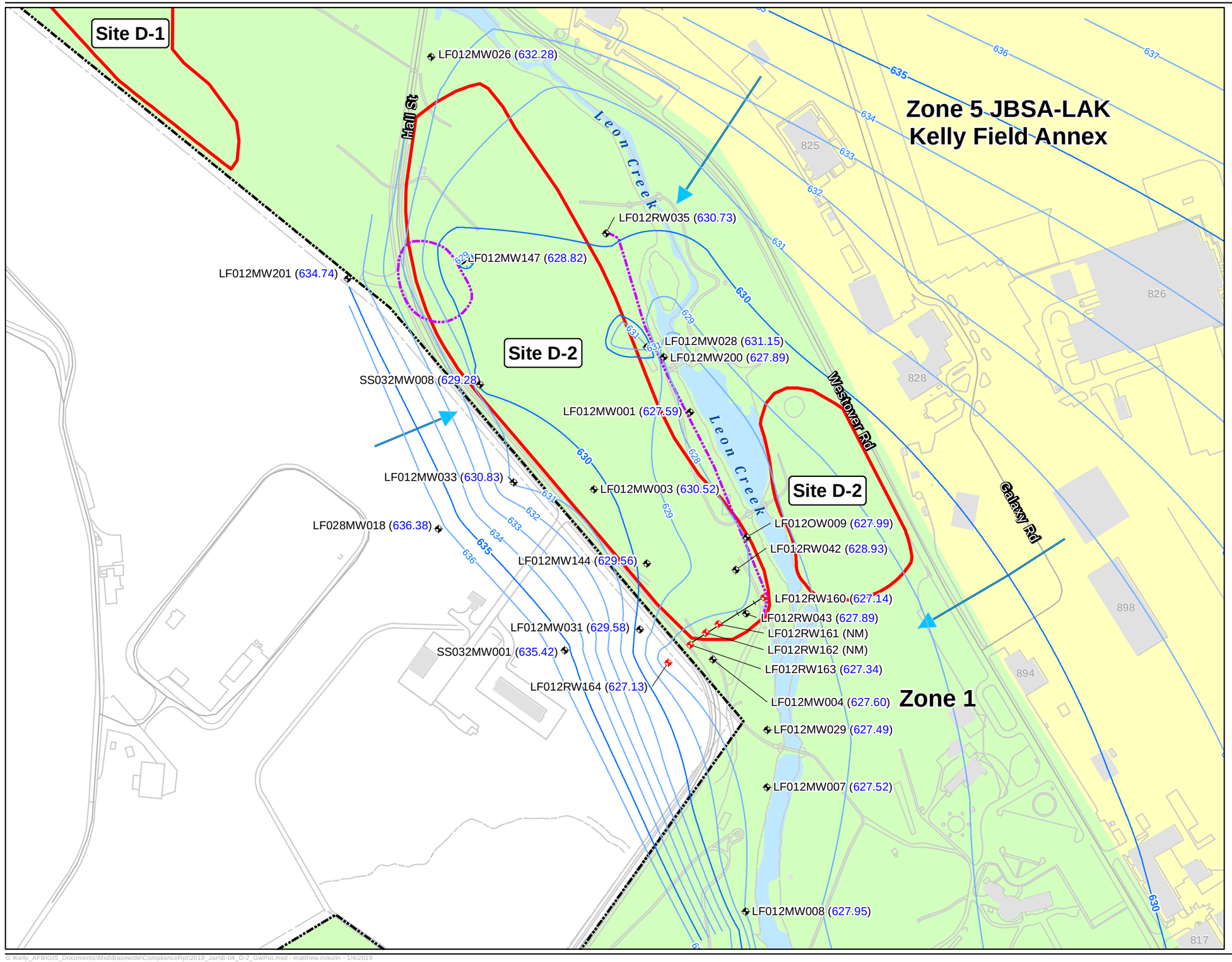
Monitoring Wells

In the northern irrigation area (LF012 West, LF028, LF029, and LF011 South), only LF012 West (also called Site D-2) has monitoring wells installed and monitored on an annual basis during the 2nd quarter as part of the RCRA Permit and Compliance Plan No. 50310 requirements. Please see the potentiometric surface map for Site D-2 (Figure B-4) for well locations.

In the southern irrigation area (LF001, LF013, LF014, LF015, LF016, LF017, WP029, and SS043), LF001 (Site D-9), LF014 (Site D-4), LF015 (Site D-5), LF017 (Site D-7), WP029 (SA-1), and SS043 (Site CS-3) have monitoring wells installed and monitored on an annual basis during the 2nd quarter as part of the RCRA Permit and Compliance Plan No. 50310 requirements. Please see potentiometric surface maps for Sites D-4, D-5, and CS-3 (Figures B-5 through B-7) for well locations.

Groundwater Contaminants

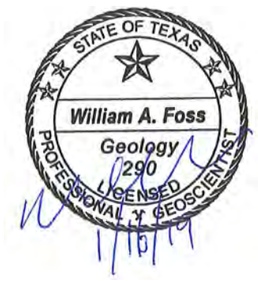
The annual report for the RCRA Permit/Compliance Plan No. 50310 includes tables showing well information and groundwater concentrations exceeding the groundwater protection standard established in the RCRA permit/Compliance Plan. The tables are included in Attachment 9 for Sites D-2, D-4, D-5, and CS-3. The shallow groundwater under the landfills is extracted and conveyed to the GWTP for treatment. The effluent from treatment is used as irrigation water for the landfills. See Table 14 (Attachment 10) for effluent concentrations for the past two years.



Legend

- Monitoring Well
- Recovery Well
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Groundwater Recovery Trench
- Slurry Wall
- Stream
- Installation Restoration Program Site (IRP)
- Building
- Former Base Boundary
- Zone 1
- Zone 5 Joint Base San Antonio -Lackland (JBSA-LAK) Kelly Field Annex

Notes:
1)The water level measurement used to interpret the potentiometric surface maps were collected for all sites during the 2018 basewide gauging event from April through June.
2) The potentiometric surfaces interpreted on this map were generalized from and interpolated between monitoring well locations. Information on actual subsurface conditions exists only at the specified locations. Water levels at other locations may differ from those interpreted on this map.
3) Groundwater elevations labeled below the well identification (ex.647.56) or along the contour line (ex.650) represent feet above mean sea level.
4) Dry = Well was dry at the time of gauging.
5) NM = Well was not measured.
6) ANM = The depth to groundwater measured was not used to create the potentiometric contours shown on this map.



0 275 550
Feet

N

Figure B-4
Potentiometric Surface Map
for Site D-2
Annual Compliance Plan Report,
January thru December 2018
Former Kelly AFB, San Antonio, Texas

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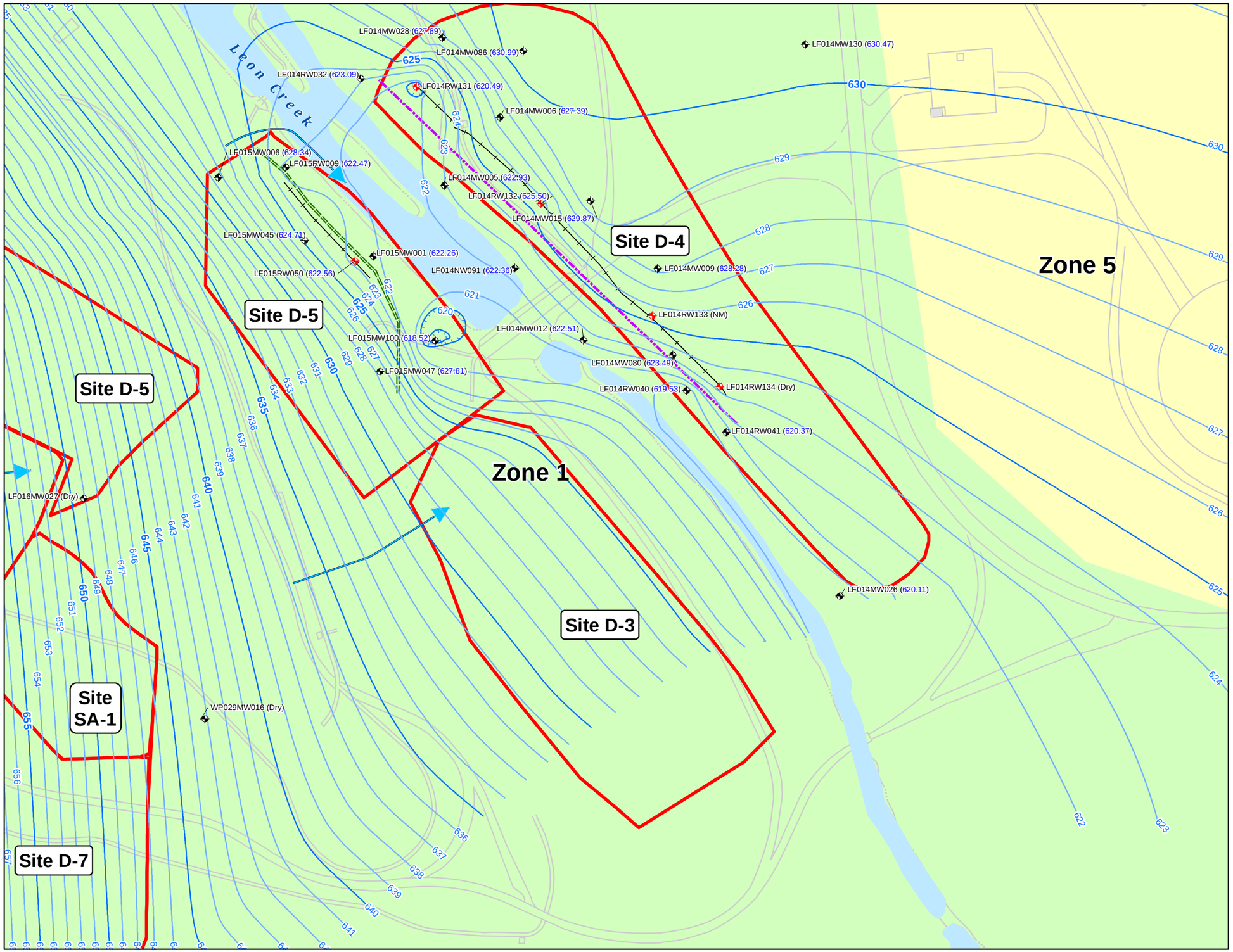

Legend

- Monitoring Well
- Recovery Well
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Groundwater Recovery Trench
- High-Density Polyethylene Barrier (HDPE)
- Slurry Wall
- Stream
- Installation Restoration Program Site (IRP)
- Building
- Zone 1
- Zone 5 Joint Base San Antonio-Lackland (JBSA-LAK) Kelly Field Annex

Notes:
1)The water level measurement used to interpret the potentiometric surface maps were collected for all sites during the 2018 basewide gauging event from April through June.
2) The potentiometric surfaces interpreted on this map were generalized from and interpolated between monitoring well locations. Information on actual subsurface conditions exists only at the specified locations. Water levels at other locations may differ from those interpreted on this map.
3) Groundwater elevations labeled below the well identification (ex.647.56) or along the contour line (ex.650) represent feet above mean sea level.
4) NM = Well was not measured.

STATE OF TEXAS
William A. Foss
Geology
290
LICENSED
PROFESSIONAL GEOSCIENTIST

0 75 150 300
Feet

N

Figure B-5
Potentiometric Surface Map for Site D-4
Annual Compliance Plan Report, January through December 2018
Former Kelly AFB, San Antonio, Texas

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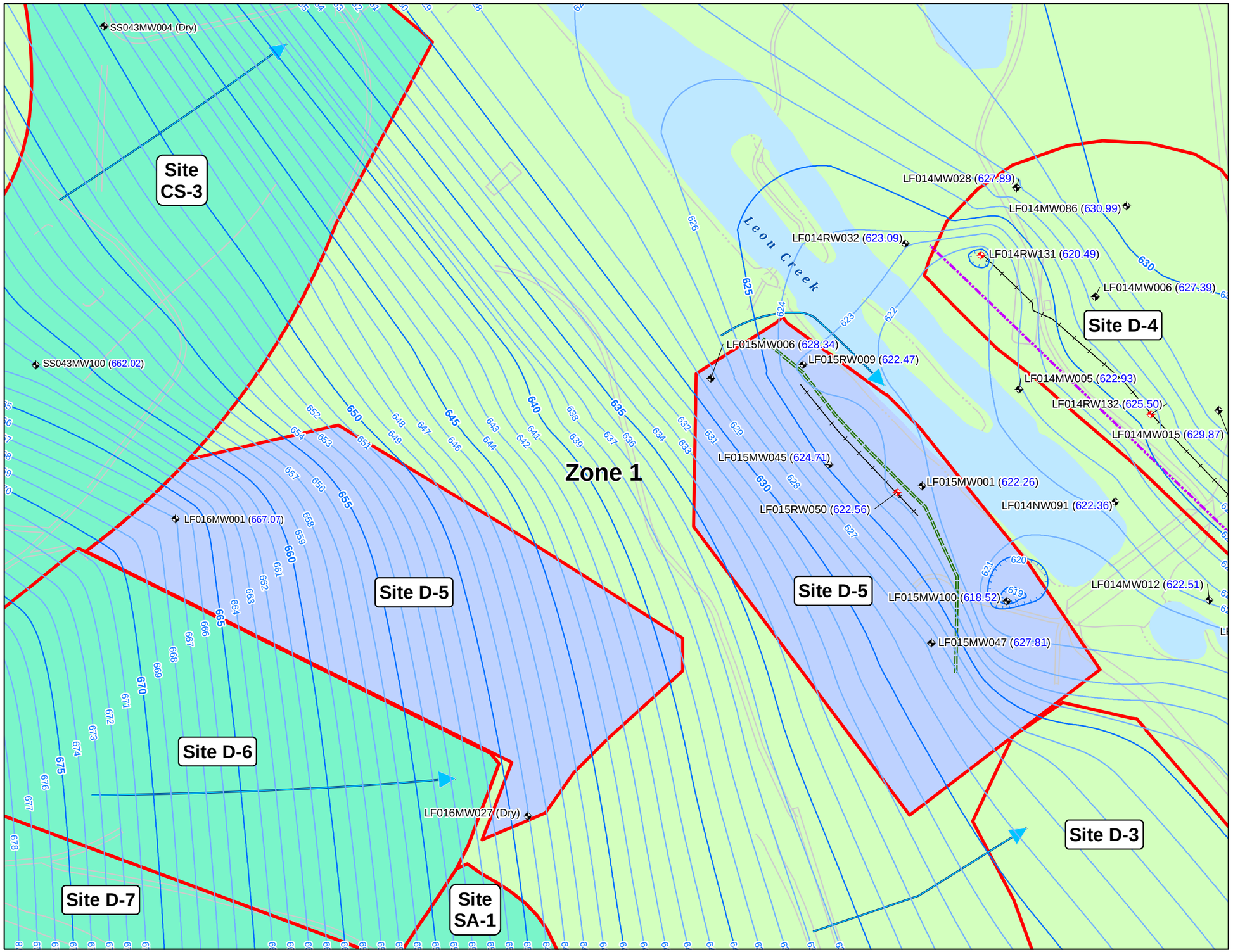
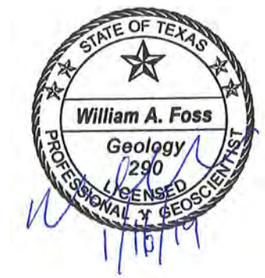


Legend

- Monitoring Well
- Recovery Well
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Groundwater Recovery Trench
- High-Density Polyethylene Barrier (HDPE)
- Slurry Wall
- Stream
- Installation Restoration Program Site (IRP)
- Site CS-3
- Site D-5
- Zone 1

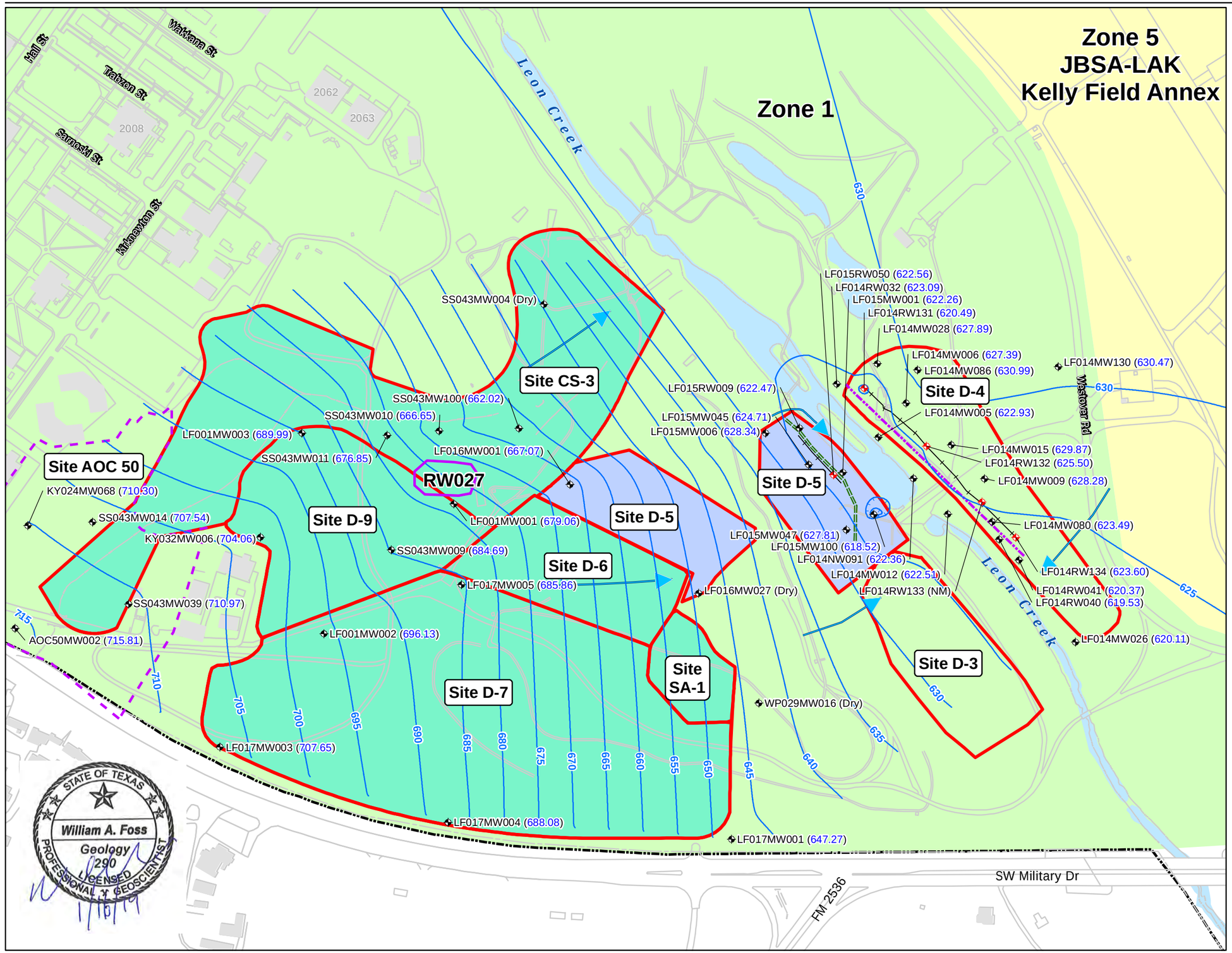
Notes:
1) The water level measurement used to interpret the potentiometric surface maps were collected for all sites during the 2018 basewide gauging event from April through June.
2) The potentiometric surfaces interpreted on this map were generalized from and interpolated between monitoring well locations. Information on actual subsurface conditions exists only at the specified locations. Water levels at other locations may differ from those interpreted on this map.
3) Groundwater elevations labeled below the well identification (ex.647.56) or along the contour line (ex.650) represent feet above mean sea level.
4) LF015MW027 is replacement well for LF016MW002.
5) Dry = Well was dry at the time of gauging.
6) NM = Well was not measured.



0 50 100 200
Feet

N

Figure B-6
Potentiometric Surface Map for Site D-5
Annual Compliance Plan Report, January through December 2018
Former Kelly AFB, San Antonio, Texas



Legend

- Monitoring Well
- Recovery Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Groundwater Recovery Trench
- Slurry Wall
- High-Density Polyethylene Barrier (HDPE)
- AOC 50 Site Boundary
- Installation Restoration Program Site (IRP)
- Building
- Former Base Boundary
- Stream
- Site CS-3
- Site D-5
- Zone 1
- Zone 5 Joint Base San Antonio -Lackland (JBSA-LAK) Kelly Field Annex

Notes:
1) The water level measurement used to interpret the potentiometric surface maps were collected for all sites during the 2018 basewide gauging event from April through June.
2) The potentiometric surfaces interpreted on this map were generalized from and interpolated between monitoring well locations. Information on actual subsurface conditions exists only at the specified locations. Water levels at other locations may differ from those interpreted on this map.
3) Groundwater elevations labeled below the well identification (ex.647.56) or along the contour line (ex.650) represent feet above mean sea level.
4) Replacement wells and substitution wells are identified in Table 1-6.
5) Dry = Well was dry at the time of gauging.
6) NM = Well was not measured.

0 150 300 600
Feet

N

Figure B-7
Potentiometric Surface Map
for Site CS-3
Annual Compliance Plan Report,
January thru December 2018
Former Kelly AFB, San Antonio, Texas

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Table 7-1
Well Construction and Groundwater Data for Site D-2, 2018 Basewide Gauging and Sampling Events

Location Data					Groundwater and LNAPL Data				Well Depth and Silting Data		
Well Identification	Northing	Easting	Well Type [a]	Date Gauged	Top of Casing Elevation [b] (ft amsl)	Measured Depth to Groundwater (ft btoc)	Groundwater Elevation [c] (ft amsl)	LNAPL Thickness (ft)	Total Measured Well Depth (ft bgs)	Total Constructed Well Depth [d] (ft bgs)	Percent Silted [e] (%)
LF012MW001	562195.6	2129304.3	POC	4/10/2018	632.73	5.14	627.59	0	15.76	12	0
LF012MW003	561973.7	2129027.8	CAO	4/10/2018	642.87	12.35	630.52	0	20.31	20.48	0
LF012MW004	561484.4	2129369.6	CAO	4/10/2018	638.85	11.25	627.60	0	18.96	18.92	0
LF012MW007	561116.7	2129525.8	POC	4/10/2018	630.27	2.75	627.52	0	15.34	16.01	0
LF012MW008	560759.3	2129463.8	POC	4/10/2018	635.16	7.21	627.95	0	14.48	14.43	0
LF012MW026	563217.7	2128558.9	BKG	4/10/2018	641.03	8.75	632.28	0	16.35	16	0
LF012MW028	562382.5	2129179.7	CAO	4/9/2018	634.88	3.73	631.15	0	15.93	16	0
LF012MW029	561281.8	2129526.1	POC	4/10/2018	631.59	4.10	627.49	0	21.60	22	0
LF012MW031	561570.3	2129160.0	CAO	4/11/2018	642.88	13.30	629.58	0	23.72	23	0
LF012MW033	561994.3	2128797.1	CAO	4/11/2018	646.83	16.00	630.83	0	26.78	27	0
LF012MW144	561760.8	2129179.9	CAO	4/10/2018	641.81	12.25	629.56	0	20.54	21	0
LF012MW147	562631.8	2128649.9	CAO	4/10/2018	643.92	15.10	628.82	0	23.48	22	0
LF012MW200	562354.2	2129228.3	POC	4/9/2018	633.53	5.64	627.89	0	12.97	12.5	0
LF012MW201	562580.3	2128319.0	BKG	4/10/2018	652.84	18.10	634.74	0	20.26	20	0
LF012OW009	561836.7	2129466.9	POC	4/10/2018	632.71	4.72	627.99	0	16.61	16.42	0
LF012RW035	562709.7	2129062.2	POC	4/9/2018	634.04	3.31	630.73	0	14.26	14.3	0
LF012RW042	561742.0	2129435.5	CAO	4/10/2018	633.83	4.90	628.93	0	17.03	18.35	0
LF012RW043	561616.6	2129464.7	POC	4/11/2018	638.69	10.80	627.89	0	19.90	21.4	0
LF012RW160	561663.4	2129517.3	RW	4/10/2018	635.32	8.18	627.14	0	10.92	22.91	–
LF012RW161	561585.8	2129385.1	RW	4/11/2018	640.02	–	–	0	–	22.85	–
LF012RW162	561561.3	2129349.9	RW	4/11/2018	641.47	–	–	0	–	22.7	–
LF012RW163	561527.1	2129304.9	RW	4/11/2018	642.59	15.25	627.34	0	18.27	14.2	–
LF012RW164	561475.5	2129241.4	RW	4/11/2018	641.68	14.55	627.13	0	24.54	25	–
LF028MW018	561860.7	2128580.6	BKG	4/11/2018	646.08	9.70	636.38	0	12.02	12	0

Table 7-1
Well Construction and Groundwater Data for Site D-2, 2018 Basewide Gauging and Sampling Events

Location Data					Groundwater and LNAPL Data				Well Depth and Silting Data		
Well Identification	Northing	Easting	Well Type [a]	Date Gauged	Top of Casing Elevation [b] (ft amsl)	Measured Depth to Groundwater (ft btoc)	Groundwater Elevation [c] (ft amsl)	LNAPL Thickness (ft)	Total Measured Well Depth (ft bgs)	Total Constructed Well Depth [d] (ft bgs)	Percent Silted [e] (%)
SS032MW001	561510.9	2128943.8	BKG	4/11/2018	644.72	9.30	635.42	0	12.78	12.5	0
SS032MW008	562275.6	2128699.8	CAO	4/10/2018	643.53	14.25	629.28	0	21.92	21.5	0

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; POC - Point of Compliance; RW - recovery well. BKG, CAO and POC wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Top of Casing Elevation data presented are from ERPIMS.

[c] Groundwater Elevation (ft amsl) is calculated based on surveyed top of casing elevation (data available in ERPIMS).

[d] Total Constructed Depth of Well (ft bgs) data presented are from ERPIMS.

[e] If measured well depth is greater than recorded well installation depth, it is assumed that siltation is less than 10 percent threshold for redevelopment, and the negative number is presented as a zero (0) because the screen is not obstructed.

– not applicable or data not available

ERPIMS - Environmental Restoration Program Information Management System (USAF)

ft - feet

ft amsl - feet above mean sea level

ft bgs - feet below ground surface

ft btoc - feet below top of casing

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

USAF - U.S. Air Force

Table 7-2
Summary of Well Compliance for Site D-2
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)
LF012MW001	04/10/2018	POC	No	Vinyl Chloride	2.4	2
LF012MW003	04/10/2018	CAO	Yes (4/10/2018)	–	–	–
LF012MW004	04/10/2018	CAO	Yes (4/10/2018)	–	–	–
LF012MW007	04/10/2018	POC	No	Arsenic	17.1	10
LF012MW008	04/10/2018	POC	Yes (5/9/2016)	–	–	–
LF012MW026	04/10/2018	BKG	Yes (5/3/2016)	–	–	–
LF012MW028	04/09/2018	CAO	No	Cadmium	14.5	5
LF012MW029	04/10/2018	POC	Yes (4/10/2018)	–	–	–
LF012MW031	04/11/2018	CAO	Yes (4/20/2017)	–	–	–
LF012MW033	04/11/2018	CAO	No	Arsenic	25.2	10
				cis-1,2-Dichloroethene	72.3	70
				Vinyl Chloride	2,200	2
LF012MW144	04/10/2018	CAO	Yes (4/10/2018)	–	–	–
LF012MW147	04/10/2018	CAO	No	Vinyl Chloride	2.2	2
LF012MW200	04/09/2018	POC	Yes (4/9/2018)	–	–	–
LF012MW201	04/10/2018	BKG	Yes (5/5/2016)	–	–	–
LF012OW009	04/10/2018	POC	Yes (4/10/2018)	–	–	–
LF012RW035	04/09/2018	POC	Yes (4/9/2018)	–	–	–
LF012RW042	04/10/2018	CAO	Yes (4/10/2018)	–	–	–
LF012RW043	04/11/2018	POC	Yes (4/11/2018)	–	–	–
LF012RW160	04/10/2018	RW	Yes (4/10/2018)	–	–	–
LF012RW161	04/11/2018	RW	Yes (4/11/2018)	–	–	–
LF012RW162	04/11/2018	RW	No	cis-1,2-Dichloroethene	93.4	70
				Vinyl Chloride	44.4	2
LF012RW163	04/11/2018	RW	No	cis-1,2-Dichloroethene	190	70
				Vinyl Chloride	6.7	2
LF012RW164	04/11/2018	RW	No	cis-1,2-Dichloroethene	71.5	70
LF028MW018	04/11/2018	BKG	No	Chromium	1,570	100
				Nickel	121	100
SS032MW001	04/11/2018	BKG	Yes (5/5/2016)	–	–	–
SS032MW008	04/10/2018	CAO	No	Arsenic	20.8	10
				cis-1,2-Dichloroethene	900	70
				Vinyl Chloride	2,600	2

Table 7-2
Summary of Well Compliance for Site D-2
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)

Notes:

[a] BKG - Background; POC - Point of Compliance; CAO - Corrective Action Observation; RW - Recovery Well. CAO, POC, and BKG wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Compliant vs. Noncompliant. The date a well is compliant is defined as the date that the hazardous constituents as listed in Compliance Plan Table III of the RCRA Permit and Compliance Plan have constituent concentrations at or below the GWPS. If the constituent is not detected, the reporting limit shall be at or below the GWPS to be considered compliant. After "Yes", the date indicates when the well first was considered compliant. A noncompliant well is defined as a well with hazardous constituents above the GWPS, or a well containing DNAPL and/or LNAPL with a thickness greater than a sheen, and no date is provided for a non-compliant well.

[c] Parameters listed are those that exceed the GWPS based on the 2018 Basewide Compliance Plan sampling event.

– not applicable or data not available

µg/L - micrograms per liter

DNAPL - dense non-aqueous phase liquid

GWPS - Groundwater Protection Standard

J - estimated value

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

UJ - Not detected. Detection limit estimated value.

Table 8-1
Well Construction and Groundwater Data for Site D-4, 2018 Basewide Gauging and Sampling Events

Location Data					Groundwater and LNAPL Data				Well Depth and Silting Data		
Well Identification	Northing	Easting	Well Type [a]	Date Gauged	Top of Casing Elevation [b] (ft amsl)	Measured Depth to Groundwater (ft btoc)	Groundwater Elevation [c] (ft amsl)	LNAPL Thickness (ft)	Total Measured Well Depth (ft bgs)	Total Constructed Well Depth [d] (ft bgs)	Percent Silted [e] (%)
LF014MW005	558644.0	2131072.0	POC	4/12/2018	627.75	4.82	622.93	0	16.59	16.82	0
LF014MW006	558750.2	2131159.1	CAO	4/12/2018	631.21	3.82	627.39	0	19.34	18.6	0
LF014MW009	558514.0	2131404.8	CAO	4/12/2018	636.39	8.11	628.28	0	18.68	19.8	0
LF014MW012	558402.5	2131289.5	POC	4/16/2018	623.11	0.60	622.51	0	13.19	14.3	0
LF014MW015	558619.9	2131300.6	CAO	4/12/2018	634.35	4.48	629.87	0	12.35	12.2	0
LF014MW026	558002.2	2131689.8	POC	4/12/2018	626.64	6.53	620.11	0	15.53	15	0
LF014MW028	558875.0	2131068.8	CAO	4/12/2018	633.29	5.40	627.89	0	14.15	14	0
LF014MW080	558378.8	2131428.7	CAO	4/16/2018	631.80	8.31	623.49	0	17.88	18	0
LF014MW086	558854.3	2131195.2	CAO	4/11/2018	633.83	2.84	630.99	0	19.81	20	0
LF014MW130	558864.4	2131635.9	BKG	4/12/2018	648.02	17.55	630.47	0	25.52	25	0
LF014NW091	558514.9	2131181.8	POC	4/16/2018	625.58	3.22	622.36	0	16.82	17	0
LF014RW032	558811.0	2130941.4	POC	4/12/2018	626.22	3.13	623.09	0	14.79	21.5	6.8%
LF014RW040	558323.4	2131450.4	POC	4/12/2018	629.73	10.20	619.53	0	20.56	22	0
LF014RW041	558258.6	2131512.4	POC	4/12/2018	629.17	8.80	620.37	0	16.15	19.5	0
LF014RW131	558801.2	2131029.0	RW	4/12/2018	630.92	10.43	620.49	0	–	9.5	–
LF014RW132 [f]	558615.3	2131225.8	RW	4/12/2018	630.95	5.45	625.50	0	–	11.75	–
LF014RW133	558437.6	2131396.3	RW	4/16/2018	632.17	–	–	0	–	12.3	–
LF014RW134 [f]	558329.2	2131505.7	RW	4/16/2018	632.84	9.24	623.60	0	–	15.2	–

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; OBS - Observation; POC - Point of Compliance; RW - Recovery Well. BKG, CAO, and POC wells are identified in the RCRA Permit and Compliance Plan (TCEQ, 2009).

[b] Top of Casing Elevation data presented are from ERPIMS.

[c] Groundwater Elevation (ft amsl) is calculated based on surveyed top of casing elevation (data available in ERPIMS).

[d] Total Constructed Depth of Well (ft bgs) data presented are from ERPIMS.

[e] If measured well depth is greater than recorded well installation depth, it is assumed that siltation is less than 10 percent threshold for redevelopment, and the negative number is presented as a zero (0) because the screen is not obstructed.

[f] Gauging data collected from piezometer associated with the recovery well.

– data not available

ERPIMS - Environmental Restoration Program Information Management System (USAF)

ft - feet

Table 8-1
Well Construction and Groundwater Data for Site D-4, 2018 Basewide Gauging and Sampling Events

Notes: *(cont.)*

ft amsl - feet above mean sea level
ft bgs - feet below ground surface
ft btoc - feet below top of casing
LNAPL - light non-aqueous phase liquid
RCRA - Resource Conservation and Recovery Act
TCEQ - Texas Commission on Environmental Quality
USAF - U.S. Air Force

Table 8-2
Summary of Well Compliance for Site D-4
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration above GWPS (µg/L)	GWPS (µg/L)
LF014MW005	04/12/2018	POC	Yes (4/28/2011)	–	–	–
LF014MW006	04/12/2018	CAO	Yes (5/9/2016)	–	–	–
LF014MW009	04/12/2018	CAO	No	Vinyl Chloride	5.5	2
LF014MW012	04/16/2018	POC	No	Arsenic	19.6	10
LF014MW015	04/12/2018	CAO	No	Arsenic	45	10
				Vinyl Chloride	56	2
LF014MW026	04/12/2018	POC	Yes (5/10/2016)	–	–	–
LF014MW028	04/12/2018	CAO	Yes (4/24/2017)	–	–	–
LF014MW080	04/16/2018	CAO	Yes (4/25/2017)	–	–	–
LF014MW086	04/11/2018	CAO	No	Vinyl Chloride	74.3	2
LF014MW130	04/12/2018	BKG	Yes (5/25/2010)	–	–	–
LF014NW091	04/16/2018	POC	Yes (5/05/2014)	–	–	–
LF014RW032	04/12/2018	POC	Yes (8/18/2009)	–	–	–
LF014RW040	04/12/2018	POC	No	Trichloroethene	10.3	5
LF014RW041	04/12/2018	POC	Yes (5/10/2016)	–	–	–
LF014RW131	04/12/2018	RW	No	cis-1,2-Dichloroethene	100	70
				Vinyl Chloride	9.7	2
LF014RW132	04/12/2018	RW	No	Arsenic	35.3	10
				Vinyl Chloride	43.4	2
LF014RW133	04/16/2018	RW	No	Arsenic	61.2	10
LF014RW134	04/16/2018	RW	Dry	Dry 2018, non-compliant in 2017.		

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; OBS - Observation; POC - Point of Compliance; RW - Recovery Well. CAO, POC, and BKG wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Compliant vs. Noncompliant. The date a well is compliant is defined as the date that the hazardous constituents as listed in CP Table III of the RCRA Permit and Compliance Plan have constituent concentrations at or below the GWPS. If the constituent is not detected, the reporting limit shall be at or below the GWPS to be considered compliant. After "Yes", the date indicates when the well first was considered compliant. A noncompliant well is defined as a well with hazardous constituents above the GWPS, or a well containing DNAPL and/or LNAPL with a thickness greater than a sheen, and no date is provided for a noncompliant well.

[c] Parameters listed are those that exceed the GWPS based on the 2018 basewide Compliance Plan sampling event.

– not applicable or data not available

µg/L - micrograms per liter

DNAPL - dense non-aqueous phase liquid

GWPS - Groundwater Protection Standard

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

Table 9-1
Well Construction and Groundwater Data for Site D-5, 2018 Basewide Gauging and Sampling Events

Location Data					Groundwater and LNAPL Data				Well Depth and Silting Data		
Well Identification	Northing	Easting	Well Type [a]	Date Gauged	Top of Casing Elevation [b] (ft amsl)	Measured Depth to Groundwater (ft btoc)	Groundwater Elevation [c] (ft amsl)	LNAPL Thickness (ft)	Total Measured Well Depth (ft bgs)	Total Constructed Well Depth [d] (ft bgs)	Percent Silted [e] (%)
LF015MW001	558533.5	2130960.5	POC	4/16/2018	627.66	5.40	622.26	0	17.86	17	0
LF015MW006	558656.4	2130718.9	BKG	4/16/2018	636.54	8.20	628.34	0	12.20	12	0
LF015MW045	558557.7	2130854.0	CAO	4/16/2018	631.91	7.20	624.71	0	12.88	12.5	0
LF015MW047	558353.5	2130971.3	CAO	4/17/2018	638.66	10.85	627.81	0	14.88	14	0
LF015MW100	558401.4	2131057.9	POC	4/17/2018	632.45	13.93	618.52	0	19.96	20	0.4%
LF015RW009	558672.4	2130824.3	POC	4/16/2018	626.07	3.60	622.47	0	12.86	16.3	0
LF015RW050	558529.1	2130932.4	RW	4/17/2018	628.56	6.00	622.56	0	–	9.9	–

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; POC - Point of Compliance; RW - Recovery Well. BKG, CAO, and POC wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Top of casing elevation data presented are from ERPIMS.

[c] Groundwater elevation (ft amsl) is calculated based on surveyed top of casing elevation (data available in ERPIMS).

[d] Total constructed well depth (ft btoc) data presented are from ERPIMS.

[e] If measured well depth is greater than recorded well installation depth, it is assumed that siltation is less than 10 percent threshold for redevelopment, and the negative number is presented as a zero (0) because the screen is not obstructed.

ERPIMS - Environmental Restoration Program Information Management System (USAF)

ft - feet

ft amsl - feet above mean sea level

ft bgs - feet below ground surface

ft btoc - feet below top of casing

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

USAF - U.S. Air Force

Table 9-2
Summary of Well Compliance for Site D-5
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)
LF015MW001	04/16/2018	POC	No	Arsenic	16.6	10
LF015MW006	04/15/2018	BKG	No	Chromium	883	100
				Nickel	380	100
LF015MW045	04/16/2018	CAO	No	Benzene	140	5
				Chlorobenzene	2,200	100
				cis-1,2-Dichloroethene	300	70
				Trichloroethene	18.5	5
				Vinyl Chloride	3,900	2
LF015MW047	04/18/2018	CAO	No	Benzene	67.4	5
				Chlorobenzene	810	100
				Chromium	1,790	100
				Nickel	1,890	100
LF015MW100	04/18/2018	POC	No	1,1-Dichloroethene	22	7
				Benzene	10.6	5
				Trichloroethene	50.7	5
				Vinyl Chloride	960	2
LF015RW009	04/16/2018	POC	No	Arsenic	109	10
LF015RW050	04/17/2018	RW	No	Arsenic	12.9	10
				Chlorobenzene	250	100

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; POC - Point of Compliance; RW - Recovery Well. CAO, POC, and BKG wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Compliant vs. Noncompliant. The date a well is compliant is defined as the date that the hazardous constituents as listed in CP Table III of the RCRA Permit and Compliance Plan have constituent concentrations at or below the GWPS. If the constituent is not detected, the reporting limit shall be at or below the GWPS to be considered compliant. After "Yes", the date indicates when the well first was considered compliant. A noncompliant well is defined as a well with hazardous constituents above the GWPS, or a well containing DNAPL and/or LNAPL with a thickness greater than a sheen, and no date is provided for a noncompliant well.

[c] Parameters listed are those that exceed the GWPS based on the 2018 basewide Compliance Plan sampling event.

– not applicable or data not available

µg/L - micrograms per liter

J - estimated value

DNAPL - dense non-aqueous phase liquid

GWPS - Groundwater Protection Standard

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

Table 10-1

Well Construction and Groundwater Data for Site CS-3, 2018 Basewide Gauging and Sampling Events

Location Data					Groundwater and LNAPL Data				Well Depth and Silting Data		
Well Identification	Northing	Easting	Well Type [a]	Date Gauged	Top of Casing Elevation [b] (ft amsl)	Measured Depth to Groundwater (ft btoc)	Groundwater Elevation [c] (ft amsl)	LNAPL Thickness (ft)	Total Measured Well Depth (ft bgs)	Total Constructed Well Depth [d] (ft bgs)	Percent Silted [e] (%)
AOC50MW002	558045.1	2128366.7	BKG	4/17/2018	724.85	9.04	715.81	0	39.61	41	2.0%
KY024MW068	558366.8	2128406.8	OBS	4/17/2018	724.28	13.98	710.30	0	42.23	42	0
KY032MW006	558331.0	2129136.0	CAO	4/19/2018	711.71	7.65	704.06	0	27.94	30	0
LF001MW001	558434.5	2129742.2	CAO	4/18/2018	690.47	11.41	679.06	0	22.45	22.95	0
LF001MW002	558027.6	2129334.6	CAO	4/18/2018	709.38	13.25	696.13	0	23.53	23.23	0
LF001MW003	558657.1	2129266.1	CAO	4/19/2018	704.44	14.45	689.99	0	22.69	22.78	0
LF016MW001	558495.5	2130105.4	POC	4/18/2018	678.97	11.90	667.07	0	16.13	16.5	0
LF016MW027	558154.8	2130509.0	POC	4/17/2018	676.34	Dry Well	–	–	15.10	15	0
LF017MW001	557384.1	2130611.8	POC	4/17/2018	658.62	11.35	647.27	0	17.73	18	0
LF017MW003	557672.4	2129009.1	BKG	4/17/2018	714.56	6.91	707.65	0	14.94	18.54	4.8%
LF017MW004	557437.1	2129724.0	POC	4/17/2018	697.93	9.85	688.08	0	19.57	19.07	0
LF017MW005	558181.7	2129765.5	OBS	4/17/2018	691.06	5.20	685.86	0	29.19	29.15	0
SS043MW004	559060.4	2130223.7	POC	4/17/2018	649.26	Dry Well	–	–	21.78	21.61	0
SS043MW009	558290.2	2129546.0	CAO	4/18/2018	695.06	10.37	684.69	0	21.80	18.5	0
SS043MW010	558663.4	2129695.7	CAO	4/18/2018	684.90	18.25	666.65	0	27.25	27.6	3.5%
SS043MW011	558649.4	2129533.2	CAO	4/19/2018	688.73	11.88	676.85	0	22.89	23.5	6.1%
SS043MW014	558377.7	2128610.1	CAO	4/17/2018	719.36	11.82	707.54	0	44.79	45	0
SS043MW039	558120.5	2128722.7	BKG	4/17/2018	720.01	9.04	710.97	0	44.58	45	0
SS043MW100	558672.1	2129945.4	CAO	4/18/2018	664.87	2.85	662.02	0	22.89	22.5	0
WP029MW016	557810.6	2130697.7	POC	4/17/2018	670.64	Dry Well	–	–	22.63	22.5	0

Notes:

[a] BKG - Background; CAO - Corrective Action Observation; OBS - Observation; POC - Point of Compliance. BKG, CAO, and POC wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Top of Casing Elevation data presented are from ERPIMS.

[c] Groundwater Elevation (ft amsl) is calculated based on surveyed top of casing elevation (data available in ERPIMS).

[d] Total Constructed Well Depth (ft bgs) data presented are from ERPIMS.

[e] If measured well depth is greater than recorded well installation depth, it is assumed that siltation is less than 10 percent threshold for redevelopment, and the negative number is presented as a zero (0) because the screen is not obstructed.

– data not applicable or not available

ERPIMS - Environmental Restoration Program Information Management System (USAF)

ft - feet

ft amsl - feet above mean sea level

ft bgs - feet below ground surface

ft btoc - feet below top of casing

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

USAF - U.S. Air Force

Table 10-2
Summary of Well Compliance for Site CS-3
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)
AOC50MW002	04/17/2018	BKG	No	Nickel	183	100
KY024MW068	04/17/2018	OBS	No	1,2-Dichloroethane	13.7	5
				Trichloroethene	130	5
KY032MW006 [d]	04/19/2018	CAO	No	1,1-Dichloroethene	10 U	7
				1,2-Dichloroethane	10 U	5
				3+4-Methylphenol	2,500	1,830
				Arsenic	143	10
				Benzene	10 U	5
				Carbon Tetrachloride	10 U	5
				cis-1,2-Dichloroethene	300	70
				Nickel	428	100
				Tetrachloroethene	10 U	5
				Toluene	5,800	1,000
				Trichloroethene	10 U	5
				Vinyl Chloride	5,900	2
LF001MW001	04/18/2018	CAO	No	1,1-Dichloroethene	11	7
				1,2-Dichlorobenzene	800	600
				1,4-Dichlorobenzene	78.1	75
				2-Methylnaphthalene	14.3	10
				Arsenic	79.6	10
				Benzene	26.8	5
				Chlorobenzene	320	1,000
				cis-1,2-Dichloroethene	2,700	70
				Selenium	117 J	50
				Toluene	1,700	1,000
				Vinyl Chloride	81,400	2
LF001MW002	04/19/2018	CAO	No	Trichloroethene	100	5
				Vinyl Chloride	10.8	2
LF001MW003	04/19/2018	CAO	No	Vinyl Chloride	12	2
LF016MW001	04/18/2018	POC	Yes (4/18/2018)	–	–	–
LF016MW027	04/17/2018	POC	Dry	Dry 2018, non-compliant in 2015.		
LF017MW001	04/17/2018	POC	No	Chromium	373	100
				Nickel	154	100
LF017MW003	04/17/2018	BKG	No	Nickel	163	100
				Tetrachloroethene	16.1	5
				Trichloroethene	11.5	5
LF017MW004	04/17/2018	POC	Yes (6/6/2012)	–	–	–
LF017MW005	04/17/2018	OBS	Yes (5/11/2016)	–	–	–
SS043MW004	04/17/2018	POC	Dry	Dry since 2008, compliant in 2008.		

Table 10-2
Summary of Well Compliance for Site CS-3
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)
SS043MW009	04/19/2018	CAO	No	1,1-Dichloroethene	40 U	7
				1,2-Dichlorobenzene	2,400	600
				1,2-Dichloroethane	120 J	5
				1,4-Dichlorobenzene	330	75
				Benzene	40 U	5
				Carbon Tetrachloride	40 U	5
				Chlorobenzene	130 J	1,000
				cis-1,2-Dichloroethene	90,000	70
				Selenium	61.7	50
				Tetrachloroethene	40 U	5
				trans-1,2-Dichloroethene	850	100
				Trichloroethene	200	5
				Vinyl Chloride	7,400	2
SS043MW010	04/18/2018	CAO	No	Arsenic	23.8	10
SS043MW011	04/19/2018	CAO	No	Arsenic	18.4	10
				Benzene	6.5	5
				Chlorobenzene	180	100
SS043MW014	04/17/2018	CAO	No	1,2-Dichloroethane	350	5
				cis-1,2-Dichloroethene	220	70
				Nickel	122	100
				trans-1,2-Dichloroethene	500	100
				Trichloroethene	4,700	5
				Vinyl Chloride	150	2
SS043MW039	04/17/2018	BKG	Yes (5/11/2016)	–	–	–
SS043MW100	04/18/2018	CAO	No	Arsenic	66.9	10
				Benzene	25.8	5
				Chlorobenzene	290	100
WP029MW016	04/17/2018	POC	Dry	Well has been dry since installation in 2009; well has never been sampled.		

Notes:

[a] BKG - Background; POC - Point of Compliance; CAO - Corrective Action Observation; OBS - Observation. CAO, POC, and BKG wells are identified in the RCRA Permit and Compliance Plan (TCEQ 2009).

[b] Compliant vs. Noncompliant. The date a well is compliant is defined as the date that the hazardous constituents as listed in CP Table III of the RCRA Permit and Compliance Plan have constituent concentrations at or below the GWPS. If the constituent is not detected, the reporting limit shall be at or below the GWPS to be considered compliant. After "Yes", the date indicates when the well first was considered compliant. A noncompliant well is defined as a well with hazardous constituents above the GWPS, or a well containing DNAPL and/or LNAPL with a thickness greater than a sheen, and no date is provided for a noncompliant well.

[c] Parameters listed are those that exceed the GWPS based on the 2018 basewide Compliance Plan sampling event.

[d] Samples were diluted to the extent that detection limits, for some analytes, exceeded the GWPS.

– not applicable or data not available

µg/L - micrograms per liter

J - estimated value

Table 10-2
Summary of Well Compliance for Site CS-3
2018 Basewide Compliance Plan Sampling Event

Well Identification	Date Sampled	Well Type [a]	Compliant [b]	Parameter [c]	Reported Concentration (µg/L)	GWPS (µg/L)

Notes: (cont.)

U - Not detected. The analyte was analyzed for but not detection above the associated method detection limit.

DNAPL - dense non-aqueous phase liquid

GWPS - Groundwater Protection Standard

LNAPL - light non-aqueous phase liquid

RCRA - Resource Conservation and Recovery Act

TCEQ - Texas Commission on Environmental Quality

Attachment 10

Table 14

Attachment 10

Table 14 for Site No.: 001

Use this table to provide effluent analysis for parameters regulated in the current permit which are not listed in Table 14.

Additional Parameter Effluent Analysis - results presented in milligrams per liter

Date (mo/yr)	Chemical Oxygen Demand	Oil and grease	Arsenic, total	Antimony, total	Lead, total	Chromium, hexavalent	Thallium, total	Anthracene	Benzene	Bis [2-chloroethyl ether]
Jun/17	5.77	<0.679	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Jul/17	1.59	<0.679	0.00482	0.0015	0.00021	<0.002	0.00005	<0.00002	<0.0002	<0.00002
Aug/17	<2.43	<0.679	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Sep/17	2.01	<0.679	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Oct/17	<2.43	<0.679	0.0041	0.00064	0.00017	<0.002	<0.000033	<0.00002	<0.0002	<0.00002
Nov/17	<2.43	0.75	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Dec/17	1.65	<0.679	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Jan/18	<2.43	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	0.000065	<0.0002	<0.00002
Feb/18	<2.43	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	<0.00002	<0.0002	<0.00002
Mar/18	1.56	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	<0.00002	<0.0002	<0.00002
Apr/18	<2.43	<0.679	0.00315	0.00193	0.00017	<0.002	0.00012	<0.00002	<0.0002	<0.00002
May/18	1.72	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	<0.00002	<0.0002	<0.00002
Jun/18	1.61	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	0.000065	<0.0002	<0.00002
Jul/18	<2.43	<0.679	0.0066	0.00313	0.00041	<0.002	0.00027	<0.00002	<0.0002	<0.00002
Aug/18	<2.43	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	<0.00002	<0.0002	<0.00002
Sep/18	1.68	<0.679	0.0033	0.00201	0.00065	<0.002	0.00052	<0.00002	<0.0002	<0.00002
Oct/18	15.94	<0.679	0.00469	<0.000168	<0.000105	<0.002	<0.000164	<0.00002	<0.0002	<0.00002
Nov/18	2.74	<0.679	NA	NA	NA	NA	NA	0.00003	<0.0002	N/A
Dec/18	1.60 J	0.52 J	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0002	N/A
Jan/19	<2.43	<0.679	0.00445	0.00033 J	0.00012 J	<0.002	0.00083 J	<0.00001	<0.0002	<0.00003
Feb/19	4.94	<0.679	0.00445	0.00033 J	0.00012 J	<0.002	0.00083 J	<0.00001	<0.0002	<0.00003
Mar/19	1.86	<0.679	N/A	N/A	N/A	N/A	N/A	<0.00001	<0.0002	N/A
Apr/19	6.67	<0.844	0.00363	0.00199 J	0.00013 J	<0.006	<0.00003	<0.00002	<0.0002	<0.00003
May/19	6.24	<0.844	N/A	N/A	N/A	N/A	N/A	<0.00002	<0.0001	N/A

Notes:

"<" indicates value below the detection limit shown after <.

J = estimated value

N/A = Not Analyzed

ND= Not detected

Attachment 10

Table 14 for Site No.: 001

Use this table to provide effluent analysis for parameters regulated in the current permit which are not listed in Table 14.

Additional Parameter Effluent Analysis - results presented in milligrams per liter

Date (mo/yr)	Bis [2-ethylhexyl phthalate]	Carbon tetrachloride	Chlorobenzene	1,2-Dibromoethane	m-Dichlorobenzene [1,3-Dichlorobenzene]	o-Dichlorobenzene [1,2-Dichlorobenzene]	p-Dichlorobenzene [1,4-Dichlorobenzene]	1,2-Dichloroethane	1,1-Dichloroethene [1,1-Dichloroethylene]
Jun/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jul/17	0.00003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Aug/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sep/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oct/17	0.00009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nov/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dec/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jan/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Feb/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mar/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Apr/18	0.00018	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
May/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Jun/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Jul/18	0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Aug/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sep/18	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Oct/18	<0.00002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nov/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dec/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jan/19	0.00009 J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Feb/19	0.00009 J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mar/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Apr/19	0.00012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
May/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

"<" indicates value below the detection limit shown after <.

J = estimated value

N/A = Not Analyzed

Attachment 10

Table 14 for Site No.: 001

Use this table to provide effluent analysis for parameters regulated in the current permit which are not listed in Table 14.

Additional Parameter Effluent Analysis - results presented in milligrams per liter

Date (mo/yr)	1,2- Dichloroethene [1,2-Dichloroethylene]	1,2-Dichloropropane	Dichloromethane [Methylene Chloride]	2-Methylnaphthalene	Tetrachloroethene [Tetrachloroethylene]	Toluene	1,1,2-Trichloroethane	Trichloroethene [Trichloroethylene]	Vinyl Chloride
Jun/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Jul/17	0.0011	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Aug/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Sep/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Oct/17	0.0012	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nov/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Dec/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Jan/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Feb/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Mar/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Apr/18	0.0035	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
May/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Jun/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Jul/18	0.0039	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Aug/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Sep/18	0.0025	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Oct/18	0.0021	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Nov/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Dec/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Jan/19	0.00085 J	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Feb/19	0.00085 J	<0.0002	<0.0002	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mar/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002
Apr/19	0.00096 J	<0.0002	<0.0002	0.00009 J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
May/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.00016

Notes:

"<" indicates value below the detection limit shown after <.

J = estimated value

N/A = Not Analyzed

STATEMENT OF BASIS/TECHNICAL SUMMARY AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

DESCRIPTION OF APPLICATION

Applicant:	U.S. Department of the Air Force; Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0003955000 (EPA I.D. No. TX0116114)
Regulated activity:	Industrial wastewater permit
Type of application:	Renewal
Request:	Renewal with changes
Authority:	Federal Clean Water Act (CWA) §402; Texas Water Code (TWC) §26.027; 30 Texas Administrative Code (TAC) Chapter 305, Subchapters C-F, and Chapters 307 and 319; commission policies; and Environmental Protection Agency (EPA) guidelines

EXECUTIVE DIRECTOR RECOMMENDATION

The executive director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The draft permit will expire at midnight, five years from the date of permit issuance according to the requirements of 30 TAC §305.127(1)(C)(i).

REASON FOR PROJECT PROPOSED

The applicant applied to the Texas Commission on Environmental Quality (TCEQ) for a renewal of its existing permit.

PROJECT DESCRIPTION AND LOCATION

The applicant currently operates Former Kelly Air Force Base GWTP, a groundwater treatment plant.

The Air Force Civil Engineer Center (AFCEC) is managing remediation activities resulting from the closure of the Former Kelly Air Force Base. Groundwater that is contaminated by hydrocarbon and chlorinated hydrocarbon is intercepted from the remediation sites by wells and pumped to a groundwater treatment plant. The treatment uses hydrogen peroxide, ultraviolet/oxidation (UV/OX), and carbon absorption technology to remove the contaminants.

The contaminated groundwater contains chlorinated volatile organic compounds (VOCs) (primarily trichloroethene, cis-1,2-dichloroethene, and vinyl chloride). Groundwater recovered from Zones 1, 2, and 3 recovery wells flows into two concrete basins (1500/1600 Basins) before being pumped through multimedia filters to remove suspended solids. Effluent from the multimedia filters is pumped to 4400 Basin which is then processed through UV/OX treatment system to remove VOCs by oxidation. After UV/OX treatment, the water is pumped through granular activated carbon polishing filters as the final treatment process before discharging into an effluent holding tank prior to discharging via Outfall 001 or to a holding tank that supplies water to irrigate Zone 1 landfills located in JBSA-Lackland.

The facility is located at 2261 Hughes Avenue, Suite 155, in JBSA-Lackland, Bexar County, Texas.

Discharge Route

The effluent is discharged directly to Lower Leon Creek in Segment No. 1906 of the San Antonio River Basin. The designated uses for Segment No. 1906 are primary contact recreation, public water supply,

and high aquatic life use. The effluent limits in the draft permit will maintain and protect the existing instream uses. All determinations are preliminary and subject to additional review and revisions.

Endangered Species Review

No priority watershed of critical concern has been identified in Segment No. 1906. However, the Peck's cave amphipod (*Stygobromus pecki*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), and San Marcos salamander (*Eurycea nana*) can occur in Bexar County. This determination is based on the United States Fish and Wildlife Service's (USFWS) biological opinion on the State of Texas authorization of the TPDES (September 14, 1998, October 21, 1998 update). To make this determination for TPDES permits, TCEQ and EPA only consider aquatic or aquatic dependent species occurring in watersheds of critical concern or high priority as listed in Appendix A of the USFWS biological opinion. The permit does not require EPA review with respect to the presence of endangered or threatened species. This determination is subject to reevaluation due to subsequent updates or amendments to the biological opinion.

Impaired Water Bodies

Segment No. 1906 is currently listed on the State's inventory of impaired and threatened waters, the 2016 CWA §303(d) list. The listing is specifically for PCBs in edible tissue and applies from the confluence with Indian Creek upstream to a point 100 meters upstream of State Highway 16 northwest of San Antonio (AUs 1906_03 through 1906_06).

This permit action is a renewal of an existing authorization that does not represent an increase in pollutant loadings; in addition, the permittee requests to remove Outfalls 003 and 004; therefore, it is not expected to contribute to the impairment for PCBs in edible tissue in Segment No. 1906.

Completed Total Maximum Daily Loads (TMDLs)

There are no completed TMDLs for Segment No. 1906.

Dissolved Oxygen

An analysis of the discharge via Outfall 001 was conducted using the calibrated QUAL-TX model documented in the Waste Load Evaluation for the San Antonio River System in the San Antonio River Basin: Segments 1901, 1903, 1906, 1911, and 1912 (1989).

Based on model results, an effluent set of 9 mg/L BOD_5 and 5.0 mg/L dissolved oxygen (DO) is predicted to be necessary to ensure that DO levels will be maintained above the criterion established by the Standards Implementation Team for Lower Leon Creek (5.0 mg/L).

SUMMARY OF EFFLUENT DATA

The following is a quantitative description of the discharge described in the monthly effluent report data for the period August 2014 through July 2019. The "Avg of Daily Avg" values presented in the following table are the average of all daily average values for the reporting period for each pollutant. The "Max of Daily Max" values presented in the following table are the individual maximum values for the reporting period for each pollutant. Flows are expressed in million gallons per day (MGD). All pH values are expressed in standard units (SU).

Flow

Outfall	Frequency	Avg of Daily Avg, MGD	Max of Daily Max, MGD
001	Continuous	0.1453	0.539
003	No discharge	N/A	N/A
004	No discharge	N/A	N/A

Effluent Characteristics

Outfall	Pollutant	Avg of Daily Avg	Max of Daily Max
		mg/L	mg/L
001	Anthracene	0.0000367	0.00012
	Benzene	<0.0002	<0.0002
	Biochemical oxygen demand, 5-day (BOD_5)	2.15	15.6
	Oil and grease	1.78	9.79
	Chemical oxygen demand (COD)	3.54	37.10
	Total suspended solids (TSS)	<4	<4
	Vinyl chloride	<0.0002	<0.0002
	1,1,2-Trichloroethane	N/A	<0.00025
	1,1-Dichloroethylene	<0.0002	<0.00025
	1,2-Dichlorobenzene	<0.0002	<0.00025
	1,2-Dichloroethane	<0.0002	<0.00025
	1,2-Dichloroethylene	0.002669	0.01656
	1,2-Dichloropropane	N/A	<0.00025
	1,3-Dichlorobenzene	<0.0002	<0.00025
	1,4-Dichlorobenzene	N/A	<0.0002
	2-Methylnaphthalene	<0.00001	<0.00025
	Antimony, total	N/A	0.00569
	Arsenic, total	0.004164	0.0066
	Bis(2-chloroethyl) ether	N/A	<0.00025
	Carbon tetrachloride	<0.00025	<0.0005
	Chlorobenzene	<0.0002	<0.0002
	Chromium, hexavalent	<0.002	<0.01
	Bis(2-ethylhexyl) phthalate	0.000739	0.00858
	1,2-Dibromoethane (Ethylene dibromide)	<0.0002	<0.00025
	Lead, total	0.000926	0.00745
	Methylene chloride (Dichloromethane)	<0.0002	<0.00025
	Tetrachloroethylene	0.000416	0.000416
	Thallium, total	0.000323	0.00083
	Toluene	<0.0002	<0.00025
	Trichloroethylene	0.000826	0.000826
	pH	6.09 SU, min	7.77 SU, max
003	No discharge	N/A	N/A
004	No discharge	N/A	N/A

No effluent limit violations were documented in the monthly effluent reports.

The following is a quantitative description of the representative soil samples from the root zones of the land application areas, described in the annual report data for the period August 2016 through August 2018. The "Max of Max" values presented in the following table are the individual maximum values for the reporting period for each pollutant. The "mg/kg" represents mg pollutant/kg dry weight basis of soil. All pH values are expressed in standard units (SU).

Irrigated Soil Characteristics

Outfall	Pollutant	Max of Max
		mg/kg
SO1	Arsenic, dry weight	7.22
	Barium, total (as Ba)	92.2
	Cadmium, dry weight	1.6
	Calcium, dissolved (as Ca)	259
	Calcium, total (as Ca)	33125
	Chromium, sludge, total, dry weight (as Cr)	48.2
	Conductivity	210 umho/cm
	Copper, dry weight	21
	Lead, sludge, total, dry weight (as Pb)	101
	Magnesium, dissolved (as Mg)	16
	Magnesium, total (as Mg)	681.33
	Manganese in bottom deposits (dry wgt)	358
	Mercury, sludge, total, dry weight (as Hg)	0.084
	Nickel, sludge, total, dry weight (as Ni)	13
	Nitrite + Nitrate total (as N)	10.5
	Nitrogen, Kjeldahl, total (as N)	5,620
	Nitrogen, total (as N)	5,620
	Ph	8.42 SU
	Phosphorus, total (as P)	99
	Potassium, total (as K)	814.5
	Selenium, dry weight	0.255
	Silver, total (as Ag)	0.467
	Sodium adsorption ratio	0.8
	Sodium, dissolved (as Na)	49.9
	Sodium, total (as Na)	44.4
	Sulphur, total elemental	99
	Zinc, sludge, total, dry weight (as Zn)	206
SO2	Arsenic, dry weight	Not required
	Barium, total (as Ba)	Not required
	Cadmium, dry weight	Not required
	Calcium, dissolved (as Ca)	Not required
	Calcium, total (as Ca)	163,000
	Chromium, sludge, total, dry weight (as Cr)	Not required
	Conductivity	60.6 umho/cm
	Copper, dry weight	Not required
	Lead, sludge, total, dry weight (as Pb)	Not required
	Magnesium, dissolved (as Mg)	Not required
	Magnesium, total (as Mg)	2,380
	Manganese in bottom deposits (dry wgt)	203
	Mercury, sludge, total, dry weight (as Hg)	Not required
	Nickel, sludge, total, dry weight (as Ni)	Not required
	Nitrite + Nitrate total (as N)	0.507
	Nitrogen, Kjeldahl, total (as N)	Not required
	Nitrogen, total (as N)	630
	pH	7.55 SU
	Phosphorus, total (as P)	639

Outfall	Pollutant	Max of Max
		mg/kg
SO2	Potassium, total (as K)	2,070
	Selenium, dry weight	Not required
	Silver, total (as Ag)	Not required
	Sodium adsorption ratio	0.548
	Sodium, dissolved (as Na)	Not required
	Sodium, total (as Na)	101
	Sulphur, total elemental	240
	Zinc, sludge, total, dry weight (as Zn)	Not required
SO3	Arsenic, dry weight	Not required
	Barium, total (as Ba)	Not required
	Cadmium, dry weight	Not required
	Calcium, dissolved (as Ca)	Not required
	Calcium, total (as Ca)	124,000
	Chromium, sludge, total, dry weight (as Cr)	Not required
	Conductivity	56.6 umho/cm
	Copper, dry weight	Not required
	Lead, sludge, total, dry weight (as Pb)	Not required
	Magnesium, dissolved (as Mg)	Not required
	Magnesium, total (as Mg)	2,370
	Manganese in bottom deposits (dry wgt)	244
	Mercury, sludge, total, dry weight (as Hg)	Not required
	Nickel, sludge, total, dry weight (as Ni)	Not required
	Nitrite + Nitrate total (as N)	0.478
	Nitrogen, Kjeldahl, total (as N)	Not required
	Nitrogen, total (as N)	640
	pH	7.55 SU
	Phosphorus, total (as P)	611
	Potassium, total (as K)	2,170
	Selenium, dry weight	Not required
	Silver, total (as Ag)	Not required
	Sodium adsorption ratio	0.573
	Sodium, dissolved (as Na)	Not required
	Sodium, total (as Na)	97.8
	Sulphur, total elemental	192
	Zinc, sludge, total, dry weight (as Zn)	Not required

No reported Sodium Adsorption Ratio (SAR) exceeds 10, therefore, no amendments are necessary to adjust the SAR.

REASONABLE POTENTIAL (RP) DETERMINATION

Outfall 001: In the past three years, the permittee has performed twenty two chronic tests, with zero demonstrations of significant mortality (i.e., zero failures).

Outfall 003: No discharge.

Outfall 004: No discharge.

A reasonable potential determination was performed in accordance with 40 CFR §122.44(d)(ii) to determine whether the discharge will reasonably be expected to cause or contribute to an exceedance of a state water quality standard or criterion within that standard. Each test species is evaluated separately. The RP determination is based on representative data from the previous three years of WET testing. This determination was performed in accordance with the methodology outlined in the TCEQ letter to the EPA dated December 28, 2015, and approved by the EPA in a letter dated December 28, 2015.

With zero failures, a determination of no RP was made. WET limits are not required and the permittee may be eligible for the testing frequency reduction after one year of quarterly testing.

DRAFT PERMIT CONDITIONS

The draft permit authorizes the discharge of treated groundwater and rinsate at a daily average flow not to exceed 1.0 MGD via Outfall 001.

Effluent limitations are established in the draft permit as indicated in Appendix D:

OUTFALL LOCATION

Outfall	Latitude	Longitude
001	29.361176 N	98.579046 W

Technology-Based Effluent Limitations

Regulations in Title 40 of the Code of Federal Regulations (40 CFR) require that technology-based limitations be placed in wastewater discharge permits based on effluent limitations guidelines, where applicable, or on best professional judgment (BPJ) in the absence of guidelines. The discharge of treated groundwater and rinsate is not subject to effluent limitations guidelines in 40 CFR Parts 400-471. The existing permit includes effluent limitations on contaminants of concern previously identified by the TCEQ's Corrective Action Section and the EPA. Technology-based effluent limitations were originally developed using BPJ based on either effluent limitations guidelines in 40 CFR Part 414 (Organic Chemicals, Plastics, and Synthetic Fibers), Subpart J (Direct Discharge Point Sources That Do Not Use End-of-Pipe Biological Treatment), or hazardous metals criteria in 30 TAC § 319.22. In most cases, these limits were modified when the first TPDES permit was issued in 2001 based on limits in the National Pollutant Discharge Elimination System (NPDES) permit. See Appendix A for development of technology-based effluent limitations.

Existing effluent limitations on COD were included in the initial permit that was issued in 1998 and are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l).

Existing effluent limitations on BOD_5, TSS, and oil and grease were brought over from the NPDES permit and included in the first TPDES permit issued in 2001. They are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l).

Existing effluent limitations on 1,2-dichloroethylene (daily average), methylene chloride (daily average), toluene (daily average and daily maximum), and pH are still applicable based on 40 CFR Part 414, Subpart J, and are carried forward in the draft permit.

Existing effluent limitations on the following pollutants were brought over from the NPDES permit and included in the first TPDES permit issued in 2001 and are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l): benzene, chlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene

(daily maximum), methylene chloride (daily maximum), tetrachloroethylene (daily maximum), trichloroethylene, and vinyl chloride (daily maximum).

Existing daily maximum monitoring and reporting requirements for the following pollutants were originally added to the permit issued in 2006 because they were identified as additional contaminants of concern: total antimony, bis(2-chloroethyl) ether, 1,2-dichloropropane, and 1,1,2-trichloroethane. These monitoring and reporting requirements are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l).

Water Quality-Based Effluent Limitations

Calculations of water quality-based effluent limitations for the protection of aquatic life and human health are presented in Appendix B. Aquatic life criteria established in Table 1 and human health criteria established in Table 2 of 30 TAC Chapter 307 are incorporated into the calculations, as are recommendations in the Water Quality Assessment Team's memorandum dated November 13, 2019. TCEQ practice for determining significant potential is to compare the reported analytical data from the facility against percentages of the calculated daily average water quality-based effluent limitation. Permit limitations are required when analytical data reported in the application exceeds 85 percent of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70 percent of the calculated daily average water quality-based effluent limitation.

Effluent data for Outfall 001 was submitted with the application. Effluent data from Outfall 001 were screened against the calculated water quality-based effluent limitations in Appendix B, and no new monitoring and reporting or effluent limitations were necessary. The calculated water quality-based limitations were compared to the existing limits, and the existing effluent limits are still protective.

Total Dissolved Solids (TDS), Chloride, and Sulfate Screening

Average concentrations of TDS, chloride, and sulfate reported in the application are all less than the respective criteria for Segment No. 1906; therefore, no further screening is necessary.

pH Screening

The existing permit includes limits on pH of 6.0 – 9.0 SU at Outfall 001, which discharges directly into Lower Leon Creek in Segment No. 1906 of the San Antonio River Basin. Screening was performed to ensure that these existing pH limits would not cause a violation of the pH criteria in Lower Leon Creek of 6.5 – 9.0 SU (see Appendix C). The existing effluent limits of 6.0 – 9.0 SU are adequate to ensure that the discharge will not violate the pH criteria in Lower Leon Creek.

Whole Effluent Toxicity Testing (Biomonitoring)

Biomonitoring requirements are included in the draft permit at Outfall 001. Chronic and acute biomonitoring testing frequency are continued from the existing permit.

SUMMARY OF CHANGES FROM APPLICATION

No changes were made from the application.

SUMMARY OF CHANGES FROM EXISTING PERMIT

The permittee requested the following changes in their amendment request that the executive director has recommended granting.

1. The permittee requests to remove the authorization for Outfalls 003 and 004. The discontinuing of Outfalls 003 and 004 has been confirmed in a letter dated February 21, 2019, with a subject of *TCEQ Conditional Approval of Technical Memorandum-Zone 4*

Groundwater-Proposed Remedy Change, Former Kelly Air Force Base, San Antonio, Texas, Rev0.

The following additional changes have been made to the draft permit.

1. Pages 3-13 were updated (January 2016 version).
2. Other Requirement No. 10 has been removed since Outfalls 003 and 004 are removed in the draft permit.
3. The facility address has been updated to include only a physical address.
4. Other Requirement No. 2 has been updated.
5. Other Requirement No. 6 has been updated.
6. Other Requirement No. 9 has been removed since Outfall 004 is removed in the draft permit.
7. Biomonitoring requirements for Outfalls 003 and 004 have been removed since the two outfalls are removed in the draft permit.

BASIS FOR DRAFT PERMIT

The following items were considered in developing the draft permit:

1. Application received on August 26, 2019, and additional information received on October 21, 2019.
2. Existing permits: TPDES Permit No. WQ0003955000 issued on May 18, 2015.
3. Waste Load Evaluation for Segment No. 1906.
4. TCEQ Rules.
5. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective March 1, 2018, as approved by EPA Region 6.
6. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective March 6, 2014, as approved by EPA Region 6, for portions of the 2018 standards not approved by EPA Region 6.
7. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective July 22, 2010, as approved by EPA Region 6, for portions of the 2014 standards not approved by EPA Region 6.
8. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective August 17, 2000, and Appendix E, effective February 27, 2002, for portions of the 2010 standards not approved by EPA Region 6.
9. *Procedures to Implement the Texas Surface Water Quality Standards* (IPs), Texas Commission on Environmental Quality, June 2010, as approved by EPA Region 6.
10. *Procedures to Implement the Texas Surface Water Quality Standards*, Texas Commission on Environmental Quality, January 2003, for portions of the 2010 IPs not approved by EPA Region 6.
11. Memos from the Standards Implementation Team and Water Quality Assessment Team of the Water Quality Assessment Section of the TCEQ.
12. *Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits*, TCEQ Document No. 98-001.000-OWR-WQ, May 1998.
13. EPA Effluent Guidelines: N/A.
14. Consistency with the Coastal Management Plan: N/A.
15. Letter dated May 28, 2014, from L'Oreal W. Stepney, P.E., Deputy Director, Office of Water, TCEQ, to Bill Honker, Director, Water Quality Protection Division, EPA (TCEQ proposed development strategy for pH evaluation procedures).

16. Letter dated June 2, 2014, from William K. Honker, P.E., Director, Water Quality Protection Division, EPA, to L'Oreal W. Stepney, P.E., Deputy Director, Office of Water, TCEQ (Approval of TCEQ proposed development strategy for pH evaluation procedures).
17. Letter dated December 28, 2015, from L'Oreal Stepney, P.E., Deputy Director, Office of Water, TCEQ, to Bill Honker, Director, Water Quality Protection Division, EPA (TCEQ proposed development strategy for procedures to determine reasonable potential for whole effluent toxicity limitations).
18. Letter dated December 28, 2015, from William K. Honker, P.E., Director, Water Quality Protection Division, EPA, to L'Oreal W. Stepney, P.E., Deputy Director, Office of Water, TCEQ (Approval of TCEQ proposed development strategy for procedures to determine reasonable potential for whole effluent toxicity limitations).

PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the chief clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the chief clerk instructs the applicant to place a copy of the application in a public place for reviewing and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The chief clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent to the chief clerk, along with the executive director's preliminary decision contained in the technical summary or fact sheet. At that time, the Notice of Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the executive director's preliminary decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment and is not a contested case hearing.

After the public comment deadline, the executive director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The chief clerk then mails the executive director's response to comments and final decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the executive director's response and decision, they can request a contested case hearing or file a request to reconsider the executive director's decision within 30 days after the notice is mailed.

The executive director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the executive director's response to comments and final decision is mailed. If a hearing request or request for reconsideration is filed, the executive director will not issue the permit and will forward the application and request to the TCEQ commissioners for their consideration at a scheduled commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the executive director calls a public meeting or the commission grants a contested case hearing as described above, the commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the commission will consider all public

comments in making its decision and shall either adopt the executive director's response to public comments or prepare its own response.

For additional information about this application, contact Ruiqiang Zong at (512) 239-4589.

Ruiqiang Zong
Ruiqiang Zong

February 20, 2020
Date

Appendix A
Calculated Technology-Based Effluent Limits

Toxic Pollutants and pH

At the time the original permit application was submitted in 1997, analysis of contaminated groundwater plumes at Kelly AFB indicated elevated levels of organic chemicals and metals. The pollutants present in the untreated groundwater and the technologies that were proposed to remediate the groundwater were similar to those considered in development of 40 CFR Part 414 (Organic Chemicals, Plastics, and Synthetic Fibers). The effluent limitations guidelines in Subpart J (Direct Discharge Point Sources That Do Not Use End-of-Pipe Biological Treatment) were used to develop technology-based effluent limitations.

Using this same methodology, the following technology-based effluent limitations have been developed for Outfall 001 in the draft permit for pollutants that are regulated in the existing permit:

Parameter	Daily Average (mg/L)	Daily Maximum (mg/L)
Lead, Total	0.320	0.690
Anthracene	0.019	0.047
Benzene	0.057	0.134
Bis(2-ethylhexyl) phthalate	0.095	0.258
Carbon Tetrachloride	0.142	0.380
Chlorobenzene	0.142	0.380
1,2 Dichlorobenzene	0.196	0.794
1,3-Dichlorobenzene	0.142	0.380
1,4-Dichlorobenzene	0.142	0.380
1,2-Dichloroethane	0.180	0.574
1,1-Dichloroethylene	0.022	0.060
1,2-Dichloroethylene	0.025	0.066
1,2-Dichloropropane	0.196	0.794
Methylene Chloride (Dichloromethane)	0.036	0.170
Tetrachloroethylene	0.052	0.164
Toluene	0.028	0.074
1,1,2-Trichloroethane	0.032	0.127
Trichloroethylene	0.026	0.069
Vinyl Chloride	0.097	0.172
pH	Between 6.0-9.0 SU	

COD

Outfall 001: Existing effluent limitations on COD were included in the initial permit that was issued in 1998 and are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l).

BOD_5, TSS, and Oil and Grease

Existing effluent limitations on BOD_5, TSS, and oil and grease were brought over from the NPDES permit and included in the first TPDES permit issued in 2001. They are carried forward in the draft permit based on EPA anti-backsliding regulations at 40 CFR § 122.44(l).

Appendix B
Calculated Water Quality-Based Effluent Limits

TEXTOX MENU #3 - PERENNIAL STREAM OR RIVER

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life
Table 2, 2018 Texas Surface Water Quality Standards for Human Health
"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	U.S. Department of the Air Force
TPDES Permit No.:	WQ0003955000
Outfall No.:	001
Prepared by:	RUIQIANG ZONG
Date:	February 20, 2020

DISCHARGE INFORMATION

Receiving Waterbody:	Lower Leon Creek
Segment No.:	1906
TSS (mg/L):	5
pH (Standard Units):	7.3
Hardness (mg/L as $CaCO_3$):	253
Chloride (mg/L):	63
Effluent Flow for Aquatic Life (MGD):	0.21
Critical Low Flow [7Q2] (cfs):	2
% Effluent for Chronic Aquatic Life (Mixing Zone):	13.98
% Effluent for Acute Aquatic Life (ZID):	39.39
Effluent Flow for Human Health (MGD):	0.14
Harmonic Mean Flow (cfs):	4.1
% Effluent for Human Health:	5.02
Human Health Criterion (select: PWS, FISH, or INC)	**PWS**

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

Stream/River Metal	*Intercept (b)*	*Slope (m)*	*Partition Coefficient (Kp)*	*Dissolved Fraction (Cd/Ct)*	*Source*	*Water Effect Ratio (WER)*	*Source*
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	147826.36	0.575		1.00	Assumed
Cadmium	6.60	-1.13	645897.93	0.236		1.00	Assumed
Chromium (total)	6.52	-0.93	741238.38	0.212		1.00	Assumed
Chromium (trivalent)	6.52	-0.93	741238.38	0.212		1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	318245.45	0.386		1.00	Assumed
Lead	6.45	-0.80	777721.31	0.205		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	195698.32	0.505		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	457152.29	0.304		1.00	Assumed
Zinc	6.10	-0.70	408057.15	0.329		1.00	Assumed

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	*FW Acute Criterion (µg/L)*	*FW Chronic Criterion (µg/L)*	*WLAa (µg/L)*	*WLAc (µg/L)*	*LTAa (µg/L)*	*LTAc (µg/L)*	*Daily Avg. (µg/L)*	*Daily Max. (µg/L)*
Aldrin	3.0	N/A	7.62	N/A	4.36	N/A	6.41	13.5
Aluminum	991	N/A	2516	N/A	1442	N/A	2119	4483
Arsenic	340	150	1501	1867	860	1437	1264	2675
Cadmium	21.1	0.468	227	14.2	130	10.9	16.0	33.9
Carbaryl	2.0	N/A	5.08	N/A	2.91	N/A	4.27	9.04
Chlordane	2.4	0.004	6.09	0.0286	3.49	0.0220	0.0323	0.0685
Chlorpyrifos	0.083	0.041	0.211	0.293	0.121	0.226	0.177	0.375
Chromium (trivalent)	1219	159	14560	5338	8343	4110	6041	12782
Chromium (hexavalent)	15.7	10.6	39.9	75.8	22.8	58.4	33.5	71.0
Copper	34.1	20.9	224	388	128	299	188	399
Cyanide (free)	45.8	10.7	116	76.6	66.6	59.0	86.6	183
4,4'-DDT	1.1	0.001	2.79	0.00716	1.60	0.00551	0.00809	0.0171
Demeton	N/A	0.1	N/A	0.716	N/A	0.551	0.809	1.71
Diazinon	0.17	0.17	0.432	1.22	0.247	0.937	0.363	0.769
Dicofol [Kelthane]	59.3	19.8	151	142	86.3	109	126	268
Dieldrin	0.24	0.002	0.609	0.0143	0.349	0.0110	0.0161	0.0342
Diuron	210	70	533	501	306	386	449	950
Endosulfan I (*alpha*)	0.22	0.056	0.559	0.401	0.320	0.309	0.453	0.959
Endosulfan II (*beta*)	0.22	0.056	0.559	0.401	0.320	0.309	0.453	0.959
Endosulfan sulfate	0.22	0.056	0.559	0.401	0.320	0.309	0.453	0.959
Endrin	0.086	0.002	0.218	0.0143	0.125	0.0110	0.0161	0.0342
Guthion [Azinphos Methyl]	N/A	0.01	N/A	0.0716	N/A	0.0551	0.0809	0.171
Heptachlor	0.52	0.004	1.32	0.0286	0.756	0.0220	0.0323	0.0685
Hexachlorocyclohexane (*gamma*) [Lindane]	1.126	0.08	2.86	0.572	1.64	0.441	0.647	1.37
Lead	175	6.80	2166	238	1241	183	269	569
Malathion	N/A	0.01	N/A	0.0716	N/A	0.0551	0.0809	0.171
Mercury	2.4	1.3	6.09	9.30	3.49	7.16	5.13	10.8
Methoxychlor	N/A	0.03	N/A	0.215	N/A	0.165	0.242	0.514
Mirex	N/A	0.001	N/A	0.00716	N/A	0.00551	0.00809	0.0171
Nickel	1027	114.1	5158	1615	2956	1243	1827	3866
Nonylphenol	28	6.6	71.1	47.2	40.7	36.4	53.4	113
Parathion (ethyl)	0.065	0.013	0.165	0.0930	0.0946	0.0716	0.105	0.222
Pentachlorophenol	11.8	9.0	29.9	64.7	17.2	49.8	25.2	53.3
Phenanthrene	30	30	76.2	215	43.6	165	64.1	135
Polychlorinated Biphenyls [PCBs]	2.0	0.014	5.08	0.100	2.91	0.0771	0.113	0.239
Selenium	20	5	50.8	35.8	29.1	27.5	40.4	85.6
Silver	0.8	N/A	36.0	N/A	20.6	N/A	30.3	64.1
Toxaphene	0.78	0.0002	1.98	0.00143	1.13	0.00110	0.00161	0.00342
Tributyltin [TBT]	0.13	0.024	0.330	0.172	0.189	0.132	0.194	0.411
2,4,5 Trichlorophenol	136	64	345	458	198	353	290	615
Zinc	257	259	1986	5643	1138	4345	1672	3539

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	*Water and Fish Criterion (µg/L)*	*Fish Only Criterion (µg/L)*	*Incidental Fish Criterion (µg/L)*	*WLAh (µg/L)*	*LTAh (µg/L)*	*Daily Avg. (µg/L)*	*Daily Max. (µg/L)*
Acrylonitrile	1.0	115	1150	19.9	18.5	27.2	57.6
Aldrin	1.146E-05	1.147E-05	1.147E-04	0.000228	0.000212	0.000312	0.000660
Anthracene	1109	1317	13170	22100	20553	30213	63920
Antimony	6	1071	10710	120	111	163	345
Arsenic	10	N/A	N/A	347	322	473	1002
Barium	2000	N/A	N/A	39856	37066	54486	115275
Benzene	5	581	5810	99.6	92.7	136	288
Benzidine	0.0015	0.107	1.07	0.0299	0.0278	0.0408	0.0864
Benzo(*a*)anthracene	0.024	0.025	0.25	0.478	0.445	0.653	1.38
Benzo(*a*)pyrene	0.0025	0.0025	0.025	0.0498	0.0463	0.0681	0.144
Bis(chloromethyl)ether	0.0024	0.2745	2.745	0.0478	0.0445	0.0653	0.138
Bis(2-chloroethyl)ether	0.60	42.83	428.3	12.0	11.1	16.3	34.5
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	6	7.55	75.5	120	111	163	345
Bromodichloromethane [Dichlorobromomethane]	10.2	275	2750	203	189	277	587
Bromoform [Tribromomethane]	66.9	1060	10600	1333	1240	1822	3855
Cadmium	5	N/A	N/A	421	392	576	1218
Carbon Tetrachloride	4.5	46	460	89.7	83.4	122	259
Chlordane	0.0025	0.0025	0.025	0.0498	0.0463	0.0681	0.144
Chlorobenzene	100	2737	27370	1993	1853	2724	5763
Chlorodibromomethane [Dibromochloromethane]	7.5	183	1830	149	139	204	432
Chloroform [Trichloromethane]	70	7697	76970	1395	1297	1907	4034
Chromium (hexavalent)	62	502	5020	1236	1149	1689	3573
Chrysene	2.45	2.52	25.2	48.8	45.4	66.7	141
Cresols [Methylphenols]	1041	9301	93010	20745	19293	28360	60000
Cyanide (free)	200	N/A	N/A	3986	3707	5448	11527
4,4'-DDD	0.002	0.002	0.02	0.0399	0.0371	0.0544	0.115
4,4'-DDE	0.00013	0.00013	0.0013	0.00259	0.00241	0.00354	0.00749
4,4'-DDT	0.0004	0.0004	0.004	0.00797	0.00741	0.0108	0.0230
2,4'-D	70	N/A	N/A	1395	1297	1907	4034
Danitol [Fenpropathrin]	262	473	4730	5221	4856	7137	15101
1,2-Dibromoethane [Ethylene Dibromide]	0.17	4.24	42.4	3.39	3.15	4.63	9.79
m-Dichlorobenzene [1,3-Dichlorobenzene]	322	595	5950	6417	5968	8772	18559
o-Dichlorobenzene [1,2-Dichlorobenzene]	600	3299	32990	11957	11120	16346	34582
p-Dichlorobenzene [1,4-Dichlorobenzene]	75	N/A	N/A	1495	1390	2043	4322
3,3'-Dichlorobenzidine	0.79	2.24	22.4	15.7	14.6	21.5	45.5
1,2-Dichloroethane	5	364	3640	99.6	92.7	136	288
1,1-Dichloroethylene [1,1-Dichloroethene]	7	55114	551140	139	130	190	403
Dichloromethane [Methylene Chloride]	5	13333	133330	99.6	92.7	136	288
1,2-Dichloropropane	5	259	2590	99.6	92.7	136	288
1,3-Dichloropropene [1,3-Dichloropropylene]	2.8	119	1190	55.8	51.9	76.2	161
Dicofol [Kelthane]	0.30	0.30	3	5.98	5.56	8.17	17.2
Dieldrin	2.0E-05	2.0E-05	2.0E-04	0.000399	0.000371	0.000544	0.00115
2,4-Dimethylphenol	444	8436	84360	8848	8229	12096	25591
Di-*n*-Butyl Phthalate	88.9	92.4	924	1772	1648	2421	5123
Dioxins/Furans [TCDD Equivalents]	7.80E-08	7.97E-08	7.97E-07	0.0000016	0.0000014	0.0000021	0.0000045
Endrin	0.02	0.02	0.2	0.399	0.371	0.544	1.15
Epichlorohydrin	53.5	2013	20130	1066	992	1457	3083

Parameter	*Water and Fish Criterion (µg/L)*	*Fish Only Criterion (µg/L)*	*Incidental Fish Criterion (µg/L)*	*WLAh (µg/L)*	*LTAh (µg/L)*	*Daily Avg. (µg/L)*	*Daily Max. (µg/L)*
Ethylbenzene	700	1867	18670	13950	12973	19070	40346
Ethylene Glycol	46744	1.68E+07	1.68E+08	931512	866306	1273469	2694211
Fluoride	4000	N/A	N/A	79712	74132	108973	230550
Heptachlor	8.0E-05	0.0001	0.001	0.00159	0.00148	0.00217	0.00461
Heptachlor Epoxide	0.00029	0.00029	0.0029	0.00578	0.00537	0.00790	0.0167
Hexachlorobenzene	0.00068	0.00068	0.0068	0.0136	0.0126	0.0185	0.0391
Hexachlorobutadiene	0.21	0.22	2.2	4.18	3.89	5.72	12.1
Hexachlorocyclohexane (*alpha*)	0.0078	0.0084	0.084	0.155	0.145	0.212	0.449
Hexachlorocyclohexane (*beta*)	0.15	0.26	2.6	2.99	2.78	4.08	8.64
Hexachlorocyclohexane (*gamma*) [Lindane]	0.2	0.341	3.41	3.99	3.71	5.44	11.5
Hexachlorocyclopentadiene	10.7	11.6	116	213	198	291	616
Hexachloroethane	1.84	2.33	23.3	36.7	34.1	50.1	106
Hexachlorophene	2.05	2.90	29	40.9	38.0	55.8	118
4,4'-Isopropylidenediphenol	1092	15982	159820	21761	20238	29749	62940
Lead	1.15	3.83	38.3	112	104	153	324
Mercury	0.0122	0.0122	0.122	0.243	0.226	0.332	0.703
Methoxychlor	2.92	3.0	30	58.2	54.1	79.5	168
Methyl Ethyl Ketone	13865	9.92E+05	9.92E+06	276301	256960	377730	799145
Methyl *tert*-butyl ether [MTBE]	15	10482	104820	299	278	408	864
Nickel	332	1140	11400	13090	12174	17895	37859
Nitrate-Nitrogen (as Total Nitrogen)	10000	N/A	N/A	199279	185330	272434	576375
Nitrobenzene	45.7	1873	18730	911	847	1245	2634
N-Nitrosodiethylamine	0.0037	2.1	21	0.0737	0.0686	0.100	0.213
N-Nitroso-di-*n*-Butylamine	0.119	4.2	42	2.37	2.21	3.24	6.85
Pentachlorobenzene	0.348	0.355	3.55	6.93	6.45	9.48	20.0
Pentachlorophenol	0.22	0.29	2.9	4.38	4.08	5.99	12.6
Polychlorinated Biphenyls [PCBs]	6.4E-04	6.4E-04	6.40E-03	0.0128	0.0119	0.0174	0.0368
Pyridine	23	947	9470	458	426	626	1325
Selenium	50	N/A	N/A	996	927	1362	2881
1,2,4,5-Tetrachlorobenzene	0.23	0.24	2.4	4.58	4.26	6.26	13.2
1,1,2,2-Tetrachloroethane	1.64	26.35	263.5	32.7	30.4	44.6	94.5
Tetrachloroethylene [Tetrachloroethylene]	5	280	2800	99.6	92.7	136	288
Thallium	0.12	0.23	2.3	2.39	2.22	3.26	6.91
Toluene	1000	N/A	N/A	19928	18533	27243	57637
Toxaphene	0.011	0.011	0.11	0.219	0.204	0.299	0.634
2,4,5-TP [Silvex]	50	369	3690	996	927	1362	2881
1,1,1-Trichloroethane	200	784354	7843540	3986	3707	5448	11527
1,1,2-Trichloroethane	5	166	1660	99.6	92.7	136	288
Trichloroethylene [Trichloroethene]	5	71.9	719	99.6	92.7	136	288
2,4,5-Trichlorophenol	1039	1867	18670	20705	19256	28305	59885
TTHM [Sum of Total Trihalomethanes]	80	N/A	N/A	1594	1483	2179	4611
Vinyl Chloride	0.23	16.5	165	4.58	4.26	6.26	13.2

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Aquatic Life	***70% of Daily Avg.***	***85% of Daily Avg.***
Parameter	***(µg/L)***	***(µg/L)***
Aldrin	4.49	5.45
Aluminum	1483	1801
Arsenic	885	1074
Cadmium	11.2	13.6
Carbaryl	2.99	3.63
Chlordane	0.0226	0.0275
Chlorpyrifos	0.124	0.150
Chromium (trivalent)	4229	5135
Chromium (hexavalent)	23.5	28.5
Copper	132	160
Cyanide (free)	60.6	73.6
4,4'-DDT	0.00566	0.00688
Demeton	0.566	0.688
Diazinon	0.254	0.309
Dicofol [Kelthane]	88.7	107
Dieldrin	0.0113	0.0137
Diuron	314	381
Endosulfan I (*alpha*)	0.317	0.385
Endosulfan II (*beta*)	0.317	0.385
Endosulfan sulfate	0.317	0.385
Endrin	0.0113	0.0137
Guthion [Azinphos Methyl]	0.0566	0.0688
Heptachlor	0.0226	0.0275
Hexachlorocyclohexane (*gamma*) [Lindane]	0.453	0.550
Lead	188	228
Malathion	0.0566	0.0688
Mercury	3.59	4.36
Methoxychlor	0.170	0.206
Mirex	0.00566	0.00688
Nickel	1279	1553
Nonylphenol	37.4	45.4
Parathion (ethyl)	0.0737	0.0894
Pentachlorophenol	17.6	21.4
Phenanthrene	44.9	54.5
Polychlorinated Biphenyls [PCBs]	0.0793	0.0963
Selenium	28.3	34.4
Silver	21.2	25.7
Toxaphene	0.00113	0.00137
Tributyltin [TBT]	0.136	0.165
2,4,5 Trichlorophenol	203	247
Zinc	1170	1421

Human Health	***70% of Daily Avg.***	***85% of Daily Avg.***
Parameter	***(µg/L)***	***(µg/L)***
Acrylonitrile	19.0	23.1
Aldrin	0.000218	0.000265
Anthracene	21149	25681
Antimony	114	138
Arsenic	331	402
Barium	38140	46313
Benzene	95.3	115
Benzidine	0.0286	0.0347
Benzo(*a*)anthracene	0.457	0.555
Benzo(*a*)pyrene	0.0476	0.0578
Bis(chloromethyl)ether	0.0457	0.0555
Bis(2-chloroethyl)ether	11.4	13.8
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	114	138
Bromodichloromethane [Dichlorobromomethane]	194	236
Bromoform [Tribromomethane]	1275	1549
Cadmium	403	489
Carbon Tetrachloride	85.8	104
Chlordane	0.0476	0.0578
Chlorobenzene	1907	2315
Chlorodibromomethane [Dibromochloromethane]	143	173
Chloroform [Trichloromethane]	1334	1620
Chromium (hexavalent)	1182	1435
Chrysene	46.7	56.7
Cresols [Methylphenols]	19852	24106
Cyanide (free)	3814	4631
4,4'-DDD	0.0381	0.0463
4,4'-DDE	0.00247	0.00301
4,4'-DDT	0.00762	0.00926
2,4'-D	1334	1620
Danitol [Fenpropathrin]	4996	6067
1,2-Dibromoethane [Ethylene Dibromide]	3.24	3.93
m-Dichlorobenzene [1,3-Dichlorobenzene]	6140	7456
o-Dichlorobenzene [1,2-Dichlorobenzene]	11442	13894
p-Dichlorobenzene [1,4-Dichlorobenzene]	1430	1736
3,3'-Dichlorobenzidine	15.0	18.2
1,2-Dichloroethane	95.3	115
1,1-Dichloroethylene [1,1-Dichloroethene]	133	162
Dichloromethane [Methylene Chloride]	95.3	115
1,2-Dichloropropane	95.3	115
1,3-Dichloropropene [1,3-Dichloropropylene]	53.3	64.8
Dicofol [Kelthane]	5.72	6.94
Dieldrin	0.000381	0.000463
2,4-Dimethylphenol	8467	10281
Di-*n*-Butyl Phthalate	1695	2058
Dioxins/Furans [TCDD Equivalents]	0.0000015	0.0000018
Endrin	0.381	0.463
Epichlorohydrin	1020	1238
Ethylbenzene	13349	16209
Ethylene Glycol	891428	1082449
Fluoride	76281	92627
Heptachlor	0.00152	0.00185

Human Health	***70% of Daily Avg.***	***85% of Daily Avg.***
Parameter	***(µg/L)***	***(µg/L)***
Heptachlor Epoxide	0.00553	0.00671
Hexachlorobenzene	0.0129	0.0157
Hexachlorobutadiene	4.00	4.86
Hexachlorocyclohexane (*alpha*)	0.148	0.180
Hexachlorocyclohexane (*beta*)	2.86	3.47
Hexachlorocyclohexane (*gamma*) [Lindane]	3.81	4.63
Hexachlorocyclopentadiene	204	247
Hexachloroethane	35.0	42.6
Hexachlorophene	39.0	47.4
4,4'-Isopropylidenediphenol	20824	25287
Lead	107	130
Mercury	0.232	0.282
Methoxychlor	55.6	67.6
Methyl Ethyl Ketone	264411	321071
Methyl *tert*-butyl ether [MTBE]	286	347
Nickel	12526	15210
Nitrate-Nitrogen (as Total Nitrogen)	190704	231569
Nitrobenzene	871	1058
N-Nitrosodiethylamine	0.0705	0.0856
N-Nitroso-di-*n*-Butylamine	2.26	2.75
Pentachlorobenzene	6.63	8.05
Pentachlorophenol	4.19	5.09
Polychlorinated Biphenyls [PCBs]	0.0122	0.0148
Pyridine	438	532
Selenium	953	1157
1,2,4,5-Tetrachlorobenzene	4.38	5.32
1,1,2,2-Tetrachloroethane	31.2	37.9
Tetrachloroethylene [Tetrachloroethylene]	95.3	115
Thallium	2.28	2.77
Toluene	19070	23156
Toxaphene	0.209	0.254
2,4,5-TP [Silvex]	953	1157
1,1,1-Trichloroethane	3814	4631
1,1,2-Trichloroethane	95.3	115
Trichloroethylene [Trichloroethene]	95.3	115
2,4,5-Trichlorophenol	19814	24060
TTHM [Sum of Total Trihalomethanes]	1525	1852
Vinyl Chloride	4.38	5.32

Appendix C

pH Screening

State Modeling. USEPA Office of Water, Washington D.C.)

INPUT			
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	4.09		4.09
RECEIVING WATER CHARACTERISTICS			
2. Temperature (deg C):	25.00		30.00
3. pH:	7.30		7.30
4. Alkalinity (mg CaCO3/L):	50.00		253.00
EFFLUENT CHARACTERISTICS			
5. Temperature (deg C):	25.00		30.00
6. pH:	6.00		9.00
7. Alkalinity (mg CaCO3/L):	20.00	*	100.00
OUTPUT			
1. IONIZATION CONSTANTS			
Upstream/Background pKa:	6.35		6.32
Effluent pKa:	6.35		6.32
2. IONIZATION FRACTIONS			
Upstream/Background Ionization Fraction:	0.90		0.90
Effluent Ionization Fraction:	0.31		1.00
3. TOTAL INORGANIC CARBON			
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	55.61		279.74
Effluent Total Inorganic Carbon (mg CaCO3/L):	64.77		100.21
4. CONDITIONS AT MIXING ZONE BOUNDARY			
Temperature (deg C):	25.00		30.00
Alkalinity (mg CaCO3/L):	42.67		215.63
Total Inorganic Carbon (mg CaCO3/L):	57.85		235.89
pKa:	6.35		6.32
pH at Mixing Zone Boundary:	6.80		7.35

* Assume minimal total alkalinity at low effluent pH based on carbonate equilibrium chemistry of natural and treated waters

Appendix D
Draft Permit Conditions

Outfall	Pollutant	Daily Average, mg/L	Daily Maximum, mg/L
001	Flow	1.0 MGD	1.5 MGD
	COD	150	300
	BOD_5	10	25
	TSS	10	25
	Oil and Grease	15	20
	Antimony, Total	N/A	Report
	Arsenic, Total	0.471	0.996
	Chromium, Hexavalent	0.014	0.029
	Lead, Total	0.064	0.134
	Thallium, Total	0.0032	0.0068
	Anthracene	0.00013	0.0003
	Benzene	0.010	0.011
	Bis(2-chloroethyl) ether	N/A	Report
	Bis(2-ethylhexyl) phthalate	0.015	0.031
	Carbon Tetrachloride	0.0481	0.101
	Chlorobenzene	0.050	0.050
	1,2-Dibromoethane (Ethylene Dibromide)	0.0003	0.0006
	1,2 Dichlorobenzene	0.050	0.106
	1,3-Dichlorobenzene	0.044	0.044
	1,4-Dichlorobenzene	N/A	0.028
	1,2-Dichloroethane	0.010	0.011
	1,1-Dichloroethylene	0.010	0.016
	1,2-Dichloroethylene	0.025	0.054
	1,2-Dichloropropane	N/A	Report
	Methylene Chloride (Dichloromethane)	0.036	0.089
	2-Methylnaphthalene	0.027	0.058
	Tetrachloroethylene	0.027	0.054
	Toluene	0.028	0.074
	1,1,2-Trichloroethane	N/A	Report
	Trichloroethylene	0.010	0.011
	Vinyl Chloride	0.0067	0.010
	pH	6.0 SU, min	9.0 SU, max

Appendix E
Comparison of Technology-Based Effluent Limits and Water Quality-Based Effluent Limits

The following table is a summary of technology-based effluent limitations calculated/assessed in the draft permit (Technology-Based), calculated/ assessed water quality-based effluent limitations (Water Quality-Based), and effluent limitations in the existing permit (Existing Permit). Effluent limitations appearing in bold are the most stringent of the three and are included in the draft permit.

Outfall	*Parameter*	*Technology-Based*		*Water Quality-Based*		*Existing Permit*	
		Daily Avg	*Daily Max*	*Daily Avg*	*Daily Max*	*Daily Avg*	*Daily Max*
		mg/L	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
001	Flow	Report, MGD	Report, MGD	1.0 MGD	1.5 MGD	**1.0 MGD**	**1.5 MGD**
	COD	150	300	N/A	N/A	**150**	**300**
	BOD_5	10	25	10	N/A	**10**	**25**
	TSS	10	25	N/A	N/A	**10**	**25**
	Oil & Grease	15	20	N/A	N/A	**15**	**20**
	Antimony, Total	N/A	N/A	0.163	0.345	**N/A**	**Report**
	Arsenic, Total	N/A	N/A	1.264	2.675	**0.471**	**0.996**
	Chromium, Hexavalent	N/A	N/A	0.033	0.071	**0.014**	**0.029**
	Lead, Total	0.320	0.690	0.269	0.569	**0.064**	**0.134**
	Thallium, Total	N/A	N/A	0.00326	0.00691	**0.032**	**0.068**
	Anthracene	0.019	0.047	30	64	**0.00013**	**0.0003**
	Benzene	0.057	0.134	0.138	0.286	**0.010**	**0.011**
	Bis(2-chloroethyl) ether	N/A	N/A	0.0163	0.0345	**N/A**	**Report**
	Bis(2-ethylhexyl) phthalate	0.095	0.258	0.163	0.345	**0.015**	**0.031**
	Carbon Tetrachloride	0.142	0.380	0.122	0.259	**0.0481**	**0.101**
	Chlorobenzene	0.142	0.380	2.70	5.76	**0.050**	**0.050**
	1,2-Dibromoethane (Ethylene Dibromide)	N/A	N/A	0.0046	0.0098	**0.0003**	**0.0006**
	1,2 Dichlorobenzene	0.196	0.794	16.3	34.6	**0.050**	**0.106**
	1,3-Dichlorobenzene	0.142	0.380	8.7	18.6	**0.044**	**0.044**
	1,4-Dichlorobenzene	0.142	0.380	2.04	4.32	**N/A**	**0.028**
	1,2-Dichloroethane	0.180	0.574	0.136	0.288	**0.010**	**0.011**
	1,1-Dichloroethylene	0.022	0.060	0.19	0.403	**0.010**	**0.016**
	1,2-Dichloroethylene	0.025	0.066	45.6	96.6	**0.025**	**0.054**
	1,2-Dichloropropane	0.196	0.794	0.136	0.288	**N/A**	**Report**
	Methylene Chloride (Dichloromethane)	0.036	0.170	0.136	0.288	**0.036**	**0.089**
	2-Methylnaphthalene	N/A	N/A	0.516	1.09	**0.027**	**0.058**

TPDES PERMIT NO.
WQ0003955000
[For TCEQ office use only -
EPA I.D. No. TX0116114]

This renewal replaces TPDES Permit No. WQ0003955000, issued on May 18, 2015.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

PERMIT TO DISCHARGE WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

U.S. Department of the Air Force

whose mailing address is

2261 Hughes Avenue, Suite 155
JBSA-Lackland, Texas 78236

is authorized to treat and discharge wastes from Former Kelly Air Force Base GWTP, a groundwater treatment facility (SIC 9711)

located at 2261 Hughes Avenue, Suite 155, in JBSA-Lackland, Bexar County, Texas 78236

via Outfall 001 directly to Lower Leon Creek in Segment No. 1906 of the San Antonio River Basin

only according to effluent limitations, monitoring requirements, and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight, five years from the date of permit issuance.

ISSUED DATE:

_____
For the Commission

1. During the period beginning upon the date of permit issuance and lasting through the date of permit expiration, the permittee is authorized to discharge treated groundwater and rinsate subject to the following effluent limitations:

The daily average flow of effluent shall not exceed 1.0 million gallons per day (MGD). The daily maximum flow shall not exceed 1.5 MGD.

Effluent Characteristics	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Average mg/L	Daily Maximum mg/L	Single Grab mg/L	Report Daily Average and Daily Maximum Measurement Frequency	Sample Type
Flow	1.0 MGD	1.5 MGD	N/A	Continuous	Record
Chemical Oxygen Demand	150	300	450	1/week	Composite
Biochemical Oxygen Demand (5-day)	10	25	38	2/month	Composite
Total Suspended Solids	10	25	38	2/month	Composite
Oil and Grease	15	20	20	2/month	Grab
Antimony, Total	N/A	Report	N/A	1/quarter	Composite
Arsenic, Total	0.471	0.996	1.4	1/quarter	Composite
Chromium, Hexavalent	0.014	0.029	0.044	1/quarter	Composite
Lead, Total	0.064	0.134	0.201	1/quarter	Composite
Thallium, Total	0.0032	0.0068	0.01	1/quarter	Composite
Anthracene	0.00013	0.0003	0.01	2/month	Composite
Benzene	0.010	0.011	0.017	2/month	Composite
Bis(2-chloroethyl) ether	N/A	Report	N/A	1/quarter	Composite
Bis(2-ethylhexyl) phthalate	0.015	0.031	0.047	1/quarter	Composite
Carbon Tetrachloride	0.0481	0.101	0.152	1/quarter	Composite
Chlorobenzene	0.050	0.050	0.075	1/quarter	Composite
1,2-Dibromoethane (Ethylene Dibromide)	0.0003	0.0006	0.01	1/quarter	Composite
1,2 Dichlorobenzene	0.050	0.106	0.159	1/quarter	Composite
1,3-Dichlorobenzene	0.044	0.044	0.066	1/quarter	Composite
1,4-Dichlorobenzene	N/A	0.028	0.042	1/quarter	Composite
1,2-Dichloroethane	0.010	0.011	0.017	1/quarter	Composite

Effluent Characteristics	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Average mg/L	Daily Maximum mg/L	Single Grab mg/L	Report Daily Average and Daily Maximum Measurement Frequency	Sample Type
1,1-Dichloroethylene	0.010	0.016	0.024	1/quarter	Composite
1,2-Dichloroethylene	0.025	0.054	0.081	1/quarter	Composite
1,2-Dichloropropane	N/A	Report	N/A	1/quarter	Composite
Methylene Chloride (Dichloromethane)	0.036	0.089	0.134	1/quarter	Composite
2-Methylnaphthalene	0.027	0.058	0.087	1/quarter	Composite
Tetrachloroethylene	0.027	0.054	0.081	1/quarter	Composite
Toluene	0.028	0.074	0.111	1/quarter	Composite
1,1,2-Trichloroethane	N/A	Report	N/A	1/quarter	Composite
Trichloroethylene	0.010	0.011	0.017	1/quarter	Composite
Vinyl Chloride	0.0067	0.010	0.02	2/month	Composite

2. The pH must not be less than 6.0 standard units nor greater than 9.0 standard units and must be monitored 1/week by grab sample.

3. There must be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

4. Effluent monitoring samples must be taken at the following location: at the discharge from the Main Groundwater Treatment Plant prior to entering the stormwater drainage system and commingling with any other waters (latitude: 29°21'46"; longitude: -98°34'42").

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC §§305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in Texas Water Code §26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

    a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder, and limited to major domestic wastewater discharge facilities with a one million gallons per day or greater permitted flow.

    b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

    c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.

    d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

    e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.

    f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

    a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.

        i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

        ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

    b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.

    c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

    d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total

mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day.

The "daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

e. Bacteria concentration (Fecal coliform, *E. coli*, or Enterococci) – the number of colonies of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substitute value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD × Concentration, mg/L × 8.34).

g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.

3. Sample Type

   a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9(a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9(c).

   b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.

6. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

   Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§319.4 - 319.12. Unless otherwise specified, effluent monitoring data shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge that is described by this permit whether or not a discharge is made for that month. Monitoring results must be submitted online using the NetDMR reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. Monitoring results must be signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act; TWC Chapters 26, 27, and 28; and THSC Chapter 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

   a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.

   b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

   a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

   b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR §264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.

   c. Records of monitoring activities shall include the following:

      i. date, time, and place of sample or measurement;
      ii. identity of individual who collected the sample or made the measurement;
      iii. date and time of analysis;
      iv. identity of the individual and laboratory who performed the analysis;
      v. the technique or method of analysis; and
      vi. the results of the analysis or measurement and quality assurance/quality control records.

      The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

   If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

   All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

   Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the regional office and the Enforcement Division (MC 224).

7. Noncompliance Notification

   a. In accordance with 30 TAC §305.125(9) any noncompliance that may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally or by facsimile transmission (FAX) to the regional office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the regional office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. For Publicly Owned Treatment Works (POTWs), effective September 1, 2020, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

   b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:

      i. unauthorized discharges as defined in Permit Condition 2(g).
      ii. any unanticipated bypass that exceeds any effluent limitation in the permit.
      iii. violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.

   c. In addition to the above, any effluent violation that deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the regional office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.

   d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.

8. In accordance with the procedures described in 30 TAC §§35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.

9. Changes in Discharges of Toxic Substances

   All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the regional office, orally or by facsimile transmission within 24 hours, and both the regional office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

   a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) that is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

      i. one hundred micrograms per liter (100 µg/L);
      ii. two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      iii. five (5) times the maximum concentration value reported for that pollutant in the permit application; or
      iv. the level established by the TCEQ.

b. That any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i. five hundred micrograms per liter (500 μg/L);
ii. one milligram per liter (1 mg/L) for antimony;
iii. ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
iv. the level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

11. All POTWs must provide adequate notice to the Executive Director of the following:

a. any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA §301 or §306 if it were directly discharging those pollutants;

b. any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and

c. for the purpose of this paragraph, adequate notice shall include information on:

i. the quality and quantity of effluent introduced into the POTW; and
ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.

b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:

i. violation of any terms or conditions of this permit;
ii. obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending, or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.

b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment,

revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.

c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation that has a reasonable likelihood of adversely affecting human health or the environment.

e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.

f. A permit may be amended, suspended and reissued, or revoked for cause in accordance with 30 TAC §§305.62 and 305.66 and TWC §7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements section of this permit.

h. In accordance with 30 TAC §305.535(a), the permittee may allow any bypass to occur from a TPDES permitted facility that does not cause permitted effluent limitations to be exceeded or an unauthorized discharge to occur, but only if the bypass is also for essential maintenance to assure efficient operation.

i. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties) for violations including, but not limited to, negligently or knowingly violating the federal CWA §§301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under the CWA §402, or any requirement imposed in a pretreatment program approved under the CWA §§402(a)(3) or 402(b)(8).

3. Inspections and Entry

a. Inspection and entry shall be allowed as prescribed in the TWC Chapters 26, 27, and 28, and THSC Chapter 361.

b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit, or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in TWC §7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.

4. Permit Amendment or Renewal

   a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:

      i. the alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in accordance with 30 TAC §305.534 (relating to New Sources and New Dischargers); or

      ii. the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9; or

      iii. the alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

   b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.

   c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.

   d. Prior to accepting or generating wastes that are not described in the permit application or that would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.

   e. In accordance with the TWC §26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.

   f. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under CWA §307(a) for a toxic pollutant that is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition. The permittee shall comply with effluent standards or prohibitions established under CWA §307(a) for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Permit Transfer

   a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.

   b. A permit may be transferred only according to the provisions of 30 TAC §305.64 (relating to Transfer of Permits) and 30 TAC §50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

   This permit does not authorize any activity of hazardous waste storage, processing, or disposal that requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

   Disposal of treated effluent by any means other than discharge directly to water in the state must be specifically authorized in this permit and may require a permit pursuant to Texas Water Code Chapter 11.

8. Property Rights

   A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

   The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Relationship to Permit Application

    The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

11. Notice of Bankruptcy.

    a. Each permittee shall notify the executive director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:

       i. the permittee;
       ii. an entity (as that term is defined in 11 USC, §101(15)) controlling the permittee or listing the permit or permittee as property of the estate; or
       iii. an affiliate (as that term is defined in 11 USC, §101(2)) of the permittee.

    b. This notification must indicate:

       i. the name of the permittee;
       ii. the permit number(s);
       iii. the bankruptcy court in which the petition for bankruptcy was filed; and
       iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.

2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge use and disposal and 30 TAC §§319.21 - 319.29 concerning the discharge of certain hazardous metals.

3. Domestic wastewater treatment facilities shall comply with the following provisions:

   a. The permittee shall notify the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.

   b. The permittee shall submit a closure plan for review and approval to the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment or other treatment unit regulated by this permit.

4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, or retention of inadequately treated wastewater.

5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.

6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under TWC §7.302(b)(6).

7. Documentation

   For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information required for TPDES permit applications, effluent data, including effluent data in permits, draft permits and permit applications, and other information specified as not confidential in 30 TAC §1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

8. Facilities that generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.

   a. Whenever flow measurements for any domestic sewage treatment facility reach 75% of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion or upgrading of the domestic wastewater treatment or collection facilities. Whenever the flow reaches 90% of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment or collection facilities. In the case of a domestic wastewater treatment facility that reaches 75% of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

      If in the judgment of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 149) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.

b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission, and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.

c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment, and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.

10. For Publicly Owned Treatment Works (POTWs), the 30-day average (or monthly average) percent removal for BOD and TSS shall not be less than 85%, unless otherwise authorized by this permit.

11. Facilities that generate industrial solid waste as defined in 30 TAC §335.1 shall comply with these provisions:

a. Any solid waste, as defined in 30 TAC §335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.

b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.

c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC §335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.

d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Remediation Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC §335.5.

e. The term “industrial solid waste management unit” means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.

f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:

i. volume of waste and date(s) generated from treatment process;
ii. volume of waste disposed of on-site or shipped off-site;
iii. date(s) of disposal;

iv. identity of hauler or transporter;
v. location of disposal site; and
vi. method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

12. For industrial facilities to which the requirements of 30 TAC Chapter 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with THSC Code Chapter 361.

TCEQ Revision 01/2016

OTHER REQUIREMENTS

9. Violations of daily maximum limitations for the following pollutants shall be reported orally or by facsimile to TCEQ Region 13 within 24 hours from the time the permittee becomes aware of the violation, followed by a written report within five working days to TCEQ Region 13 and Compliance Monitoring Team (MC 224):

Pollutant	MAL[1] (mg/L)
Arsenic (Total)	0.0005
Chromium (Hexavalent)	0.003
Lead (Total)	0.0005
Thallium (Total)	0.0005
Anthracene	0.010
Benzene	0.010
Bis(2-ethylhexyl) phthalate	0.010
Carbon Tetrachloride	0.002
Chlorobenzene	0.010
1,2-Dibromoethane	0.010
1,2-Dichlorobenzene	0.010
1,3-Dichlorobenzene	0.010
1,4-Dichlorobenzene	0.010
1,2-Dichloroethane	0.010
1,1-Dichloroethylene	0.010
1,2-Dichloroethylene	0.010
Methylene Chloride	0.020
2-Methylnaphthalene	—
Tetrachloroethylene	0.010
Toluene	0.010
Trichloroethylene	0.010
Vinyl Chloride	0.010

Test methods used must be sensitive enough to demonstrate compliance with the permit effluent limitations. If an effluent limit for a pollutant is less than the MAL, then the test method for that pollutant must be sensitive enough to demonstrate compliance at the MAL. Permit compliance/noncompliance determinations will be based on the effluent limitations contained in this permit, with consideration given to the MAL for the pollutants specified above.

Pollutant	MAL (mg/L)
Antimony (Total)	0.005
Bis(2-chloroethyl) ether	0.010
1,2-Dichloropropane	0.010
1,1,2-Trichloroethane	0.010

When an analysis of an effluent sample for a pollutant listed above indicates no detectable levels above the MAL and the test method detection level is as sensitive as the specified MAL, a value of zero shall be used for that measurement when making calculations for the self-reporting form.

[1] Minimum analytical level.

This applies to determinations of daily maximum concentration, calculations of loading and daily averages, and other reportable results.

When a reported value is zero based on this MAL provision, the permittee shall submit the following statement with the self-reporting form either as a separate attachment to the form or as a statement in the comments section of the form:

> "The reported value(s) of zero for [list pollutant(s)] on the self-reporting form for [monitoring period date range] is based on the following conditions: (1) the analytical method used had a method detection level as sensitive as the MAL specified in the permit, and (2) the analytical results contained no detectable levels above the specified MAL."

When an analysis of an effluent sample for a pollutant indicates no detectable levels and the test method detection level is not as sensitive as the MAL specified in the permit, or an MAL is not specified in the permit for that pollutant, the level of detection achieved shall be used for that measurement when making calculations for the self-reporting form. A zero may not be used.

10. The chronic aquatic life mixing zone is defined as 300 feet downstream and 100 feet upstream from the point of discharge. Chronic toxic criteria apply at the edge of the chronic aquatic life mixing zone.

11. The following composite sampling techniques apply to volatile organic compounds (including but not limited to: benzene, carbon tetrachloride, chlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloropropane, methylene chloride, tetrachloroethylene, toluene, 1,1,2-trichloroethane, trichloroethylene, and vinyl chloride). The permittee shall manually collect a minimum of four (4) aliquots (grab samples) in clean, zero-head-space containers at regular intervals during the actual hours of discharge during the 24-hour sampling period using sample collection, preservation, and handling techniques specified in the test method. These aliquots must be combined in the laboratory to represent the composite sample of the discharge. One of the following alternative methods must be used to composite these aliquots.
    a. Each aliquot is poured into a syringe. The plunger is added, and the volume in the syringe is adjusted to 1-1/4 mL. Each aliquot (1-1/4 mL) is injected into the purging chamber of the purge and trap system. After four (4) injections (total 5 mL), the chamber is purged. Only one analysis or run is required since the aliquots are combined prior to analysis.
    b. Chill the four (4) aliquots to 4° Centigrade. These aliquots must be of equal volume. Carefully pour the contents of each of the four aliquots into a 250-500 mL flask which is chilled in a wet ice bath. Stir the mixture gently with a clean glass rod while in the ice bath. Carefully fill two (2) or more clean 40 mL zero-head-space vials from the flask and dispose of the remainder of the mixture. Analyze one of the aliquots to determine the concentration of the composite sample. The remaining aliquot(s) are replicate composite samples that can be analyzed if desired or necessary.
    c. Alternative sample compositing methods may be used following written approval by the Executive Director.

    The individual samples resulting from the application of these compositing methods must be analyzed following the procedures specified for the selected test method. The resulting analysis must be reported as the daily composite concentration.

    As an alternative to the above compositing methods, the permittee may manually collect a minimum of four (4) aliquots (grab samples) in clean, zero-head-space containers at regular intervals during the actual hours of discharge during the 24-hour sampling period using sample collection, preservation, and handling techniques specified in the test method. A separate analysis must be conducted for each discrete grab sample following the approved test methods. The determination of daily average concentration is the arithmetic average (weighted by flow) of all grab samples collected during the 24-hour sampling period.

12. This permit does not authorize the discharge of domestic wastewater. All domestic wastewater must be disposed of in an approved manner, such as routing to an approved on-site septic tank and drainfield system or to an authorized third party for treatment and disposal.

13. Monitoring results must be provided at the intervals specified in the permit. For pollutants which are monitored four times per year (1/quarter), the first effluent report must be submitted in January, April, July, and October, whichever is the closest month after the date of permit issuance, and subsequent reports must be submitted every three months thereafter.

14. The permittee may discharge treated groundwater and rinsate from Outfall 001 through permitted outfall held under United States Department of the Air Force (USDAF) TPDES Permit No. WQ0003955000. The USDAF Lackland Air Force Base has, in the previous TPDES Permit WQ0003955000 permit, been authorized to receive the treated wastewaters from the Kelly Air Force Base Groundwater Treatment Facilities only if the appropriate provisions/authorizations associated with Lackland AFB authorize the receipt and disposal of discharges of treated groundwater and contain all effluent limitations and monitoring frequencies as outlined on Pages 2 through 2a of this permit. This provision does not exempt the USDAF Lackland Air Force Base from obtaining any authorization to accept waste which may be required by the TCEQ.

15. This permit does not authorize the discharge of any wastes other than treated groundwater or rinsate from groundwater remediation equipment.

16. IRRIGATION REQUIREMENTS

    Irrigation requirements are applicable to the reclaimed water source which consists of remediated groundwater and rinsate from the existing Groundwater Treatment Plants (GWTP). The existing GWTP is located at the former Kelly Air Force Base, now operated by the U.S. Department of the Air Force.

    a. Effluent used for irrigation must come from the groundwater treatment plants associated with Outfall 001. Effluent used for irrigation must meet the effluent limits described on Pages 2 through 2a of this permit.

    b. Irrigation practices must be designed and managed to prevent contamination of groundwater or surface waters and to prevent the occurrence of nuisance conditions. Tail water control facilities must be provided, where necessary, to prevent the discharge of any wastewater which might drain from irrigated lands to water in the state.

    c. Adequate signs must be erected stating that the irrigation water is from a non-potable water supply. Said signs must consist of a red slash superimposed over the international symbol for drinking water accompanied by the message “Do not drink the water,” in both English and Spanish.

    d. No wastewater may be applied within twenty-four (24) hours after a measured rainfall of 0.5 inches or greater, or to any zone containing standing water.

    e. The permittee shall maintain a perennial crop of Bermuda Grass or a similar vegetation cover over the 158 acres of the Lackland Air Force Base. The irrigated areas must be maintained regularly in accordance with management practices. Fertilizers must be used if required to maintain healthy grass on the irrigated areas.

    f. The permittee shall tabulate the volume and quality of the wastewater used for irrigation, the acreage which has been irrigated, and the soil sampling results for the preceding year. This data must be submitted to the TCEQ Water Quality Assessment Team (MC-150), Industrial Permits Team (MC-148), and Region 13 Office during the month of September of

each calendar year. The annual maximum hydraulic loading rate must not exceed 4.0 acre-feet per year per acre irrigated (acre-feet/acre/year) over the 158 acres irrigated.

g. The permittee shall provide adequate maintenance of the treatment and irrigation facilities to ensure that the facilities are in working condition. The permittee shall not remove any treatment or irrigation facilities from service without prior notification of the Executive Director of the TCEQ.

h. This permit does not authorize the discharge of any pollutant from the irrigation site. The wastewater disposal system must be designed and operated to prevent:

(1) discharge from the irrigated property;

(2) recharge of groundwater resources which supply or may potentially supply domestic raw water; and

(3) the occurrence of nuisance conditions.

i. The permittee shall maintain an operating log which records the volume of wastewater used for irrigation each day, the hours the wastewater is applied each day, and the actual surface area wetted each day. The operating log must be retained on-site with records from the previous five years for inspection by authorized representatives of the TCEQ.

j. Soil Testing Plan

The permittee shall obtain representative soil samples from the root zones of the land application areas. Composite sampling techniques must be used. Each composite sample must represent no more than 40 acres with no less than 10 to 15 subsamples representing each composite sample. Subsamples must be composited by like sampling depth, type of crop, and soil type for analysis and reporting. Soil types are soils that have like topsoil or plow layer textures. These soils must be sampled individually from 0 to 6 inches, 6 to 18 inches, and 18 to 30 inches below ground level except in the landfill areas where only the 0 to 6-inch sample must be taken. The permittee shall sample and analyze soils in December to February of each year. Soil samples must be analyzed within 30 days of procurement.

The permittee shall provide annual soil analyses of the land application area according to the following table:

Parameter	Method	Minimum Analytical Level (MAL)	Reporting Units
pH	2:1 (v/v) water to soil mixture		Reported to 0.1 pH units after calibration of pH meter
Electrical Conductivity	Obtained from the SAR water saturated paste extract	0.01	dS/m (same as mmho/cm)
Nitrate-nitrogen	From a 1 N KCl soil extract	1	mg/kg (dry weight basis)
Total Kjeldahl Nitrogen (TKN)	For determination of Organic plus Ammonium Nitrogen. Procedures that use Mercury (Hg) are not acceptable.	20	mg/kg (dry weight basis)

Parameter	Method	Minimum Analytical Level (MAL)	Reporting Units
Total Nitrogen	= TKN plus Nitrate-nitrogen		mg/kg (dry weight basis)
Plant-available: Phosphorus	Mehlich III with inductively coupled plasma	1	mg/kg (dry weight basis)
Plant-available: Potassium (K) Calcium (Ca) Magnesium (Mg) Sodium (Na) Sulfur (S)	May be determined in the same Mehlich III extract with inductively coupled plasma	5 (K) 10 (Ca) 5 (Mg) 10 (Na) 1 (S)	mg/kg (dry weight basis)
Total: Arsenic Barium Cadmium Chromium Copper Lead Manganese Mercury Nickel Selenium Silver Zinc	EPA SW-846 method 3050B		mg/kg (dry weight basis)
Water-soluble: Sodium (Na) Calcium (Ca) Magnesium (Mg)	Obtained from the SAR water saturated paste extract	1 (Na) 1 (Ca) 1 (Mg)	Water soluble constituents are *reported* in mg/L
Sodium Adsorption Ratio (SAR)	$SAR = \frac{Na}{\sqrt{\frac{(Ca+Mg)}{2}}}$		Express concentrations of Na, Ca, and Mg in the water saturated paste extract in milliequivalents/liter (meq/L) to calculate the SAR. The SAR value is unitless. If the SAR is greater than 10, amendments (e.g., gypsum) shall be added to the soil to adjust the SAR to less than 10.
Amendment addition, e.g., gypsum	Recommendation from analytical laboratory		Report in *short tons/acre* in the year affected

A copy of this soil testing plan must be provided to the analytical laboratory prior to sample analysis. The permittee shall submit the results of the annual soil sample analyses with copies of the laboratory reports with a map depicting the permanent sampling fields to the TCEQ Region 13 Office, Water Quality Assessment Team (MC-150), and Water Quality Compliance Monitoring Team (MC-224) of the Enforcement Division no later than the end

of September of each sampling year. If wastewater is not applied in a particular year, the permittee shall notify the same TCEQ offices and indicate that wastewater has not been applied on the approved land irrigation site(s) during that year.

k. The permittee shall submit a cropping plan on an annual basis to the TCEQ Water Quality Assessment Team (MC-150) in September of each year. This plan must include, but is not limited to, the following information:

(1) soils map depicting the location of the crops currently being grown. These locations should be identified by field and crop;

(2) list of the crops and the acreage of each crop;

(3) growing season of each crop;

(4) nutrient requirements of each crop;

(5) supplemental watering requirements;

(6) salt tolerances of each crop;

(7) harvesting methods; and

(8) number of harvests per year per crop.

l. The permittee shall use cultural practices to promote and maintain the health and propagation of the grass crops and avoid plant lodging. The permittee shall mow the grass crops at least one time during the year. Mowing dates shall be recorded in a log book kept on site to be made available to TCEQ personnel upon request.

m. The physical condition of the spray irrigation fields must be monitored on a weekly basis during irrigation. Any areas with problems such as surface runoff, surficial erosion, stressed or damaged vegetation must be recorded in the field log kept on-site, and corrective measures must be initiated within 24 hours of discovery.

BIOMONITORING REQUIREMENTS

CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

   a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.

   b. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this part of this permit and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," fourth edition (EPA-821-R-02-013) or its most recent update:

      1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0). This test should be terminated when 60% of the surviving adults in the control produce three broods or at the end of eight days, whichever occurs first. This test shall be conducted once per quarter.

      2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

   The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

   c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These effluent dilution concentrations are 6%, 8%, 10%, 14%, and 19% effluent. The critical dilution, defined as 14% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.

   d. This permit may be amended to require a WET limit, a chemical-specific effluent limit, a best management practice, or other appropriate actions to address toxicity. The permittee may be required to conduct a toxicity reduction evaluation (TRE) after multiple toxic events.

   e. Testing Frequency Reduction

      1) If none of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee may submit this information in writing and, upon approval, reduce the testing frequency to once per six months for the invertebrate test species and once per year for the vertebrate test species.

      2) If one or more of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee shall continue quarterly testing for that

species until this permit is reissued. If a testing frequency reduction had been previously granted and a subsequent test demonstrates significant toxicity, the permittee shall resume a quarterly testing frequency for that species until this permit is reissued.

2. Required Toxicity Testing Conditions

a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fail to meet the following criteria:

1) a control mean survival of 80% or greater;

2) a control mean number of water flea neonates per surviving adult of 15 or greater;

3) a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;

4) a control coefficient of variation percent (CV%) of 40 or less in between replicates for the young of surviving females in the water flea test; and the growth and survival endpoints in the fathead minnow test;

5) a critical dilution CV% of 40 or less for the young of surviving females in the water flea test; and the growth and survival endpoints for the fathead minnow test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test;

6) a percent minimum significant difference of 47 or less for water flea reproduction; and

7) a percent minimum significant difference of 30 or less for fathead minnow growth.

b. Statistical Interpretation

1) For the water flea survival test, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be the Fisher's exact test as described in the manual referenced in in Part 1.b.

2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced in Part 1.b.

3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The document entitled "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004) provides guidance on determining the validity of test results.

4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the survival in the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all

dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.

5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is defined as a statistically significant difference between the survival, reproduction, or growth of the test organism in a specified effluent dilution when compared to the survival, reproduction, or growth of the test organism in the control.

6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3.

7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The guidance manual referenced in Item 3 will be used when making a determination of test acceptability.

8) TCEQ staff will review test results for consistency with rules, procedures, and permit requirements.

c. Dilution Water

1) Dilution water used in the toxicity tests must be the receiving water collected at a point upstream of the discharge point as close as possible to the discharge point but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall:

a) substitute a synthetic dilution water that has a pH, hardness, and alkalinity similar to that of the closest downstream perennial water unaffected by the discharge; or

b) use the closest downstream perennial water unaffected by the discharge.

2) Where the receiving water proves unsatisfactory as a result of pre-existing instream toxicity (i.e. fails to fulfill the test acceptance criteria of Part 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of Part 2.a;

b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days); and

c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3.

3) The synthetic dilution water shall consist of standard, moderately hard, reconstituted water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

d. Samples and Composites

1) The permittee shall collect a minimum of three composite samples from Outfall 001. The second and third composite samples will be used for the renewal of the dilution concentrations for each toxicity test.

2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged on an intermittent basis.

3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first composite sample. The holding time for any subsequent composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.

4) If Outfall 001 ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.

5) The effluent samples shall not be dechlorinated after sample collection.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated whether carried to completion or not.

b. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit.

1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12-month period.

2) Semiannual biomonitoring test results are due on or before July 20th and

January 20th for biomonitoring conducted during the previous 6-month period.

3) Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.

4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.

c. Enter the following codes for the appropriate parameters for valid tests only:

1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

2) For the water flea, Parameter TOP3B, report the NOEC for survival.

3) For the water flea, Parameter TXP3B, report the LOEC for survival.

4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0."

5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.

6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.

7) For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.

9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.

10) For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."

11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.

12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.

d. Enter the following codes for retests only:

1) For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

2) For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

4. Persistent Toxicity

The requirements of this Part apply only when a test demonstrates a significant effect at the critical dilution. Significant lethality and significant effect were defined in Part 2.b. Significant sublethality is defined as a statistically significant difference in growth/reproduction at the critical dilution when compared to the growth/reproduction in the control.

a. The permittee shall conduct a total of 2 additional tests (retests) for any species that demonstrates a significant effect (lethal or sublethal) at the critical dilution. The two retests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within 20 days of test completion. Test completion is defined as the last day of the test.

b. If the retests are performed due to a demonstration of significant lethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5. The provisions of Part 4.a. are suspended upon completion of the two retests and submittal of the TRE action plan and schedule defined in Part 5.

If neither test demonstrates significant lethality and the permittee is testing under the reduced testing frequency provision of Part 1.e., the permittee shall return to a quarterly testing frequency for that species.

c. If the two retests are performed due to a demonstration of significant sublethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall again perform two retests as stipulated in Part 4.a.

d. If the two retests are performed due to a demonstration of significant sublethality, and neither test demonstrates significant lethality, the permittee shall continue testing at the quarterly frequency.

e. Regardless of whether retesting for lethal or sublethal effects, or a combination of the two, no more than one retest per month is required for a species.

5. Toxicity Reduction Evaluation

a. Within 45 days of the retest that demonstrates significant lethality, or within 45 days of being so instructed due to multiple toxic events, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.

b. Within 90 days of the retest that demonstrates significant lethality, or within 90 days of being so instructed due to multiple toxic events, the permittee shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall describe an approach for the reduction or elimination of lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:

1) Specific Activities - The TRE action plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled “Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I” (EPA/600/6-

91/005F) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

2) Sampling Plan - The TRE action plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects a specific pollutant and source of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;

3) Quality Assurance Plan - The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and

4) Project Organization - The TRE action plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.

c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.

d. The permittee shall submit quarterly TRE activities reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:

1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;

2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

3) any data and substantiating documentation which identifies the pollutant(s) and source of effluent toxicity;

4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;

5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution; and

6) any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.

f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive months with at least monthly testing. At the end of the 12 months, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 28 months from the last test day of the retest that confirmed significant lethal effects at the critical dilution. The permittee may petition the Executive Director (in writing) for an extension of the 28-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall provide information pertaining to the specific control mechanism selected that will, when implemented, result in the reduction of effluent toxicity to no significant lethality at the critical dilution. The report shall also provide a specific corrective action schedule for implementing the selected control mechanism.

h. Based on the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements, where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

i. Copies of any and all required TRE plans and reports shall also be submitted to the U.S. EPA Region 6 office, 6WQ-PO.

TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Dates and Times Composites Collected

Date Time Date Time

No. 1 FROM: _____ TO: _____

No. 2 FROM: _____ TO: _____

No. 3 FROM:_____ TO: _____

Test initiated: _____am/pm _____date

Dilution water used: _____ Receiving water _____ Synthetic Dilution water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

REP	Percent effluent					
	0%	6%	8%	10%	14%	19%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Survival Mean						
Total Mean						
CV%*						
PMSD						

*Coefficient of Variation = standard deviation x 100/mean (calculation based on young of the surviving adults)
Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

TABLE 1 (SHEET 2 OF 4)

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean number of young produced per adult significantly less than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

   CRITICAL DILUTION (14%): _____ YES _____ NO

PERCENT SURVIVAL

	Percent effluent					
Time of Reading	0%	6%	8%	10%	14%	19%
24h						
48h						
End of Test						

2. Fisher's Exact Test:

   Is the mean survival at test end significantly less than the control survival for the % effluent corresponding to lethality?

   CRITICAL DILUTION (14%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

   a.) NOEC survival = _____% effluent

   b.) LOEC survival = _____% effluent

   c.) NOEC reproduction = _____% effluent

   d.) LOEC reproduction = _____% effluent

TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times Composites Collected

Date Time Date Time

No. 1 FROM: _____ TO: _____

No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____am/pm _____date

Dilution water used: _____ Receiving water _____ Synthetic dilution water

FATHEAD MINNOW GROWTH DATA

Effluent Concentration	Average Dry Weight in replicate chambers					Mean Dry Weight	CV%*
	A	B	C	D	E		
0%							
6%							
8%							
10%							
14%							
19%							
PMSD							

* Coefficient of Variation = standard deviation x 100/mean

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean dry weight (growth) at 7 days significantly less than the control's dry weight (growth) for the % effluent corresponding to significant nonlethal effects?

   CRITICAL DILUTION (14%): _____ YES _____ NO

TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW GROWTH AND SURVIVAL TEST

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration	Percent Survival in replicate chambers					Mean percent survival			CV%*
	A	B	C	D	E	24h	48h	7 day	
0%									
6%									
8%									
10%									
14%									
19%									

* Coefficient of Variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean survival at 7 days significantly less than the control survival for the % effluent corresponding to lethality?

   CRITICAL DILUTION (14%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

   a.) NOEC survival = _____% effluent

   b.) LOEC survival = _____% effluent

   c.) NOEC growth = _____% effluent

   d.) LOEC growth = _____% effluent

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

a. The permittee shall test the effluent for lethality in accordance with the provisions in this section. Such testing will determine compliance with Texas Surface Water Quality Standard 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.

b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms," fifth edition (EPA-821-R-02-012) or its most recent update:

1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.

2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.

A valid test result must be submitted for each reporting period. The permittee must report, and then repeat, an invalid test during the same reporting period. The repeat test shall include the control and the 100% effluent dilution and use the appropriate number of organisms and replicates, as specified above. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. The control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.

d. This permit may be amended to require a WET limit, a best management practice, a chemical-specific limit, or other appropriate actions to address toxicity. The permittee may be required to conduct a toxicity reduction evaluation (TRE) after multiple toxic events.

2. Required Toxicity Testing Conditions

a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.

b. Dilution Water - In accordance with Part 1.c., the control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.

c. Samples and Composites

1) The permittee shall collect one composite sample from Outfall 001.

2) The permittee shall collect the composite sample such that the sample is representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged.

3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the composite sample. The sample shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.

4) If Outfall 001 ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report.

5) The effluent sample shall not be dechlorinated after sample collection.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated.

b. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit.

1) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6-month period.

2) Quarterly biomonitoring test results are due on or before April 20th, July 20th, and October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.

c. Enter the following codes for the appropriate parameters for valid tests only:

1) For the water flea, Parameter TIE3D, enter a “0” if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a “1.”

2) For the fathead minnow, Parameter TIE6C, enter a “0” if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a “1.”

d. Enter the following codes for retests only:

1) For retest number 1, Parameter 22415, enter a “0” if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a “1.”

2) For retest number 2, Parameter 22416, enter a “0” if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is

less than or equal to 50%, enter a "1."

4. Persistent Mortality

The requirements of this part apply when a toxicity test demonstrates significant lethality, which is defined as a mean mortality of 50% or greater of organisms exposed to the 100% effluent concentration for 24 hours.

a. The permittee shall conduct 2 additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for 2 weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour.

b. If one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5.

5. Toxicity Reduction Evaluation

a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.

b. Within 90 days of the retest that demonstrates significant lethality, the permittee shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall lead to the successful elimination of significant lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:

1) Specific Activities - The TRE action plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled "Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

2) Sampling Plan - The TRE action plan should describe sampling locations,

methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant and source of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;

3) Quality Assurance Plan - The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and

4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.

c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.

d. The permittee shall submit quarterly TRE activities reports concerning the progress of the TRE. The quarterly TRE activities reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:

1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;

2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

3) any data and substantiating documentation that identifies the pollutant and source of effluent toxicity;

4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;

5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and

6) any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.

f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall specify the control mechanism that will, when implemented, reduce effluent toxicity as specified in Part 5.h. The report shall also specify a corrective action schedule for implementing the selected control mechanism.

h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE.

The permittee may be exempted from complying with 30 TAC § 307.6(e)(2)(B) upon proving that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g., metals) form a salt compound. Following the exemption, this permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.

i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

j. Copies of any and all required TRE plans and reports shall also be submitted to the U.S. EPA Region 6 office, 6WQ-PO.

TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

TABLE 2 (SHEET 2 OF 2)

FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent