



Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
 - English
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 2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
 - English
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-



Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

1. Resumen en lenguaje sencillo (PLS, por sus siglas en inglés) de la actividad propuesta
 - Inglés
 - Idioma alternativo (español)
2. Primer aviso (NORI, por sus siglas en inglés)
 - Inglés
 - Idioma alternativo (español)
3. Solicitud original

TCF-ADMIN-3 Plain Language Summary

English:

The Lower Colorado River Authority (LCRA) (CN600253637) operates the Thomas C. Ferguson Power Plant (TCF) (RN100219468), which is a natural gas-fired combined cycle electric power generation facility that consists of two combustion turbines with a single steam turbine and has an approximate net generating capacity of 556 megawatts (MW). The facility is located at 2001 Ferguson Road, near Horseshoe Bay, Texas 78657.

This application is for a renewal to discharge 435,000,000 gallons per day of once through cooling water, auxiliary cooling water, stormwater, and also authorizes the following waste streams monitored in the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred to as "previously monitored effluents" (low-volume wastewater and metal cleaning waste) via Outfall 001. Low volume waste sources drain on a continuous and flow-variable basis via internal Outfall 101 and 201. Metal cleaning waste sources drain on a continuous and flow-variable basis via internal Outfall 401.

The discharge of once through cooling water via Outfall 001 and low volume waste and metal cleaning waste via Outfalls 101, 201, and 401 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: total residual chlorine, total dissolved solids, chloride, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from this discharge. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and water used for other plant operations is supplied by Lake Lyndon B. Johnson (LBJ). The City of Horseshoe Bay municipal water system (CN603175936, PWS No. 1500015) supplies the facility's potable water. Water from Lake LBJ is withdrawn at the intake structure and treated with chemicals to prevent biofouling and scaling, then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from chemical containment areas and other sources drains to the neutralization basin for treatment prior to discharge via Outfall 101. Low volume waste sources including boiler blowdown, reverse osmosis reject, and clarifier backwash discharge receive carbon dioxide sparging for pH adjustment as needed prior to disposal via Outfall 201. Water contained in secondary containments is routed through an oil and water separator prior to discharge via Outfall 201. Domestic wastewater is routed to the City of Horseshoe Bay Reclamation Plant, TPDES Permit No. WQ0011217001, for treatment and disposal. Metal-cleaning waste from equipment cleaning and low volume waste sources receives no treatment and may be disposed off-site or discharged via Outfall 401.

Español:

La Lower Colorado River Authority (LCRA) (CN600253637) opera la Central Eléctrica Thomas C. Ferguson (TCF) (RN100219468), que es una instalación de generación de energía eléctrica de ciclo combinado alimentada con gas natural que consta de dos turbinas de combustión con una sola turbina de vapor y tiene una capacidad neta de generación aproximada de 556 megawatts (MW). La instalación está ubicada en 2001 Ferguson Road, cerca de Horseshoe Bay, Texas 78657.

Esta solicitud es para una renovación para la descarga de 435,000,000 de galones por día de agua de enfriamiento de una sola pasada, agua de enfriamiento auxiliar y aguas pluviales, y también autoriza los siguientes flujos de desechos monitoreados en la instalación (desagües internos) antes de que se mezclen con las otras aguas residuales autorizadas para su descarga a través del desagüe principal 001, denominados "efluentes previamente monitoreados" (aguas residuales de bajo volumen y desechos de limpieza de metales) a través del desagüe 001. Las fuentes de residuos de bajo volumen drenan de forma

continua y con caudal variable a través de los desagües internos 101 y 201. Las fuentes de residuos de limpieza de metales drenan de forma continua y con caudal variable a través del desagüe interno 401.

La descarga de agua de enfriamiento de una sola pasada a través del desagüe 001 y los desechos de bajo volumen y los desechos de limpieza de metales a través de los desagües 101, 201 y 401 de esta instalación están sujetos a las pautas federales de limitación de efluentes de 40 CFR Parte 423. Los contaminantes que se esperan de estas descargas según 40 CFR Parte 423 son: cloro residual total, sólidos disueltos totales, cloruro, sólidos suspendidos totales, aceite y grasa, hierro total, cobre total y pH. También se espera que haya temperatura en esta descarga. Los contaminantes potenciales adicionales se incluyen en el Informe técnico de aplicación de aguas residuales industriales, hoja de trabajo 2.0.

El agua de enfriamiento y el agua utilizada para otras operaciones de la planta la suministra el lago Lyndon B. Johnson (LBJ). El sistema municipal de agua de la ciudad de Horseshoe Bay (CN603175936, PWS No. 1500015) suministra el agua potable de la instalación. El agua del lago LBJ se extrae en la estructura de admisión y se trata con productos químicos para evitar la bioobstrucción y la formación de incrustaciones, luego pasa a través de condensadores y equipos auxiliares de una sola pasada para enfriar el equipo y condensar el vapor de escape.

Las aguas residuales de bajo volumen de las áreas de contención química y otras fuentes se drenan a la cuenca de neutralización para su tratamiento antes de la descarga a través del desagüe 101. Las fuentes de residuos de bajo volumen, incluida la purga de la caldera, los desechos de ósmosis inversa y la descarga de retrolavado del clarificador, reciben un rociado de dióxido de carbono para el ajuste del pH según sea necesario antes de la eliminación a través del desagüe 201. El agua contenida en las contenciones secundarias se dirige a través de un separador de aceite y agua antes de la descarga a través del desagüe 201. Las aguas residuales domésticas se llevan a la Planta de Recuperación de la Ciudad de Horseshoe Bay, Permiso TPDES No. WQ0011217001, para su tratamiento y eliminación. Los residuos de limpieza de metales provenientes de la limpieza de equipos y las fuentes de residuos de bajo volumen no reciben tratamiento y pueden eliminarse fuera del sitio o descargarse a través del desagüe 401.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN WATER QUALITY PERMIT RENEWAL

PERMIT NO. WQ0001369000

APPLICATION. Lower Colorado River Authority, P.O. Box 220, Austin, Texas 78767, which owns a natural gas-fired combined cycle electric power generating facility, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0001369000 (EPA I.D. No. TX0057576) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily average flow of 435,000,000 gallons per day. The facility is located at 2001 Ferguson Road, near the city of Horseshoe Bay, in Llano County, Texas 78657. The discharge route is from the plant site to Lake Lyndon B. Johnson. TCEQ received this application on July 30, 2024. The permit application will be available for viewing and copying at Llano County Library, 102 East Haynie Street, Llano, in Llano County, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.371388,30.5575&level=18>

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

El aviso de idioma alternativo en español está disponible en

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public

interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application.** If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing. A contested case hearing is a legal proceeding similar to a civil trial in state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number; applicant's name and proposed permit number; the location and distance of your property/activities relative to the proposed facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; a list of all disputed issues of fact that you submit during the comment period and, the statement "[I/we] request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify by name and physical address an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are relevant to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. **If a hearing is granted, the subject of a hearing will be limited to disputed issues of fact or mixed questions of fact and law relating to relevant and material water quality concerns submitted during the comment period. TCEQ may act on an application to renew a permit for discharge of wastewater without providing an opportunity for a contested case hearing if certain criteria are met.**

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

INFORMATION AVAILABLE ONLINE. For details about the status of the application, visit the Commissioners' Integrated Database at www.tceq.texas.gov/goto/cid. Search the database using the permit number for this application, which is provided at the top of this notice.

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at <https://www14.tceq.texas.gov/epic/eComment/>, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Lower Colorado River Authority at the address stated above or by calling Ms. Wendy Schreiber, Manager, Plant Environmental Support, at 512-767-3560.

Issuance Date: August 30, 2024

Comisión de Calidad Ambiental del Estado de Texas



AVISO DE RECIBO DE LA SOLICITUD Y EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA RENOVACION

PERMISO NO. WQ0001369000

SOLICITUD. Lower Colorado River Authority, P.O. Box 220, Austin, Texas 78767, propietaria de una planta de generación de energía eléctrica de ciclo combinado alimentada con gas natural, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0001369000 (EPA I.D. No. TX0057576) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas y aguas pluviales en un volumen que no sobrepasa un flujo promedio diario de 435,000,000 galones por día. La planta está ubicada 2001 Ferguson Road, cerca de la ciudad de Horseshoe Bay, en el Condado de Llano, Texas 78657. La ruta de descarga es del sitio de la planta al Lago Lyndon B. Johnson. La TCEQ recibió esta solicitud el 30 de julio de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en Biblioteca del Condado de Llano, 102 East Haynie Street, Condado de Llano, Texas antes de la fecha de publicación de este aviso en el periódico. La solicitud (cualquier actualización y aviso inclusive) está disponible electrónicamente en la siguiente página web:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.371388,30.5575&level=18>

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ

realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los periodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios. Si ciertos criterios se cumplen, la TCEQ puede actuar sobre una solicitud para renovar un permiso sin proveer una oportunidad de una audiencia administrativa de lo contencioso.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la

solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado específico. Si desea que se agregue su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Para buscar en la base de datos, utilizar el número de permiso para esta solicitud que aparece en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía <http://www14.tceq.texas.gov/epic/eComment/> o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional de la Lower Colorado River Authority a la dirección indicada arriba o llamando a Sra. Wendy Schreiber, Gerente, Apoyo Medioambiental de las Plantas al 512-767-3560.

Fecha de emisión el 30 de agosto de 2024



July 30, 2024

Texas Commission on Environmental Quality (TCEQ)
Applications Review and Processing Team
Building F, Room 2101
12100 Park 35 Circle
Austin, Texas 78753

Re: Lower Colorado River Authority (CN600253637)
Thomas C. Ferguson Power Plant (RN100219468)
TPDES Wastewater Renewal Application
Permit No. WQ0001369000

Dear Applications Team:

Enclosed with this transmittal letter is an original of a renewal permit application for the Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0001369000. If you have any questions regarding this application, please contact me at (512) 730-5633 or via email at Julie.Podbielski@lcra.org.

Sincerely,

A handwritten signature in blue ink, reading "Julie Podbielski", is positioned above the printed name.

Julie Podbielski
Environmental Advisor

Enclosures

cc: Bill Steinhauser, PE, LCRA
Wendy Schreiber, LCRA



**RENEWAL APPLICATION
TCEQ INDUSTRIAL WASTEWATER PERMIT**

**FERGUSON POWER PLANT
PERMIT # WQ0001369000**

SUBMITTED TO:

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
APPLICATIONS REVIEW AND PROCESSING TEAM
BUILDING F, ROOM 2101
12100 PARK 35 CIRCLE
AUSTIN, TEXAS 78753**

SUBMITTED BY:

**LOWER COLORADO RIVER AUTHORITY
ENVIRONMENTAL AFFAIRS
P.O. Box 220
AUSTIN, TEXAS 78767**



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the industrial wastewater permit application.

APPLICANT NAME: Lower Colorado River Authority

PERMIT NUMBER (If new, leave blank): WQ00 01369000

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

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Worksheet 8.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Worksheet 9.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SPIF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Worksheet 10.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Worksheet 11.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Involvement Plan Form	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Worksheet 11.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Plain Language Summary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Worksheet 11.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Worksheet 11.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Affected Landowners Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Landowner Disk or Labels	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Original Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Design Calculations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solids Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 5.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water Balance	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 6.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 7.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

For TCEQ Use Only

Segment Number _____ County _____
Expiration Date _____ Region _____
Permit Number _____



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs, except applications for oil and gas extraction operations subject to 40 CFR Part 435. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report.

Applications for oil and gas extraction operations subject to 40 CFR Part 435 must use the Oil and Gas Exploration and Production Administrative Report ([TCEQ Form-20893 and 20893-inst¹](#)).

Item 1. Application Information and Fees (Instructions, Page 26)

a. Complete each field with the requested information, if applicable.

Applicant Name: Lower Colorado River Authority

Permit No.: WQ0001369000

EPA ID No.: TX0057576

Expiration Date: January 29, 2025

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

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

c. Check the box next to the appropriate facility status.

☒ Active

☐ Inactive

d. Check the box next to the appropriate permit type.

☒ TPDES Permit

☐ TLAP

☐ TPDES with TLAP component

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

☐ New

☐ Renewal with changes

☒ Renewal without changes

☐ Major amendment with renewal

☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

f. If applying for an amendment or modification, describe the request: N/A

For TCEQ Use Only

Segment Number _____ County _____

Expiration Date _____ Region _____

Permit Number _____

¹ https://www.tceq.texas.gov/publications/search_forms.html

g. Application Fee

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend. / Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	<input type="checkbox"/> \$350	<input type="checkbox"/> \$350	<input type="checkbox"/> \$315	<input type="checkbox"/> \$150
Minor facility subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	<input type="checkbox"/> \$1,250	<input type="checkbox"/> \$1,250	<input type="checkbox"/> \$1,215	<input type="checkbox"/> \$150
Major facility	N/A ²	<input type="checkbox"/> \$2,050	<input checked="" type="checkbox"/> \$2,015	<input type="checkbox"/> \$450

h. Payment Information

Mailed

Check or money order No.: [Click to enter text.](#)

Check or money order amt.: [Click to enter text.](#)

Named printed on check or money order: [Click to enter text.](#)

Epay

Voucher number: [713116 and 71317](#)

Copy of voucher attachment: [TCF-ADMIN-1-Epay-Voucher](#)

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: [CN600253637](#)

Note: Locate the customer number using the [TCEQ's Central Registry Customer Search](#)³.

b. Legal name of the entity (applicant) applying for this permit: [Lower Colorado River Authority](#)

Note: The owner of the facility must apply for the permit. 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.

c. Name and title of the person signing the application. (Note: The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: [Mr.](#) Full Name (Last/First Name): [Andrew Valencia](#)

Title: [Senior Vice President, Generation](#) Credential: [PE](#)

d. Will the applicant have overall financial responsibility for the facility?

☒ Yes ☐ No

² All facilities are designated as minors until formally classified as a major by EPA.

³ <https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 3. Co-applicant Information (Instructions, Page 27)

☒ Check this box if there is no co-applicant.; otherwise, complete the below questions.

a. Legal name of the entity (co-applicant) applying for this permit: Click to enter text.

Note: 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.

b. Customer Number (if applicant is an existing customer): CNClick to enter text.

Note: Locate the customer number using the TCEQ's Central Registry Customer Search.

c. Name and title of the person signing the application. (Note: The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Click to enter text.

Full Name (Last/First Name): Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

d. Will the co-applicant have overall financial responsibility for the facility?

☐ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 4. Core Data Form (Instructions, Pages 27)

a. Complete one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)) 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: TCF-ADMIN-2-Core Data Form

Item 5. Application Contact Information (Instructions, Page 27)

Provide names of two individuals who can be contact for additional information about this application. Indicate if the individual can be contact about administrative or technical information, or both.

a. ☒ Administrative Contact ☒ Technical Contact

Prefix: Ms. Full Name (Last/First Name): Podbielski, Julie

Title: Environmental Advisor Credential: Click to enter text.

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220; H305

City/State/Zip: Austin, TX 78767

Phone No: 512-730-5633

Email: Julie.Podbielski@lcra.org

b. ☒ Administrative Contact ☒ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Steinhauser, Bill

Title: Sr. Mgr., Env Permitting and Compliance Credential: PE

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220; H305

City/State/Zip: Austin, TX 78767

Phone No: 512-730-6749

Email: Bill.Steinhauser@lcra.org

Attachment: N/A

Item 6. Permit Contact Information (Instructions, Page 28)

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

a. Prefix: Ms. Full Name (Last/First Name): Podbielski, Julie

Title: Environmental Advisor Credential: Click to enter text.

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220; H305

City/State/Zip: Austin, TX 78767

Phone No: 512-730-5633

Email: Julie.Podbielski@lcra.org

b. Prefix: Mr. Full Name (Last/First Name): Steinhauser, Bill

Title: Sr. Mgr., Env Permitting and Compliance Credential: PE

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220; H305

City/State/Zip: Austin, TX 78767

Phone No: 512-730-6749

Email: Bill.Steinhauser@lcra.org

Attachment: N/A

Item 7. Billing Contact Information (Instructions, Page 28)

The permittee is responsible for paying the annual fee. The annual fee will be assessed for 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.

Prefix: Ms. Full Name (Last/First Name): Loeve, Beckie

Title: Environmental Supervisor - Gas Credential: Click to enter text.

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box E

City/State/Zip: Bastrop, TX 78602

Phone No: 512-663-4153

Email: Beckie.Loeve@lcra.org

Item 8. DMR/MER Contact Information (Instructions, Page 28)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs. Note: DMR data must be submitted through the NetDMR system. An electronic reporting account can be established once the facility has obtained the permit number.

Prefix: Ms. Full Name (Last/First Name): Loeve, Beckie

Title: Environmental Supervisor - Gas Credential: Click to enter text.

Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box E

City/State/Zip: Bastrop, Texas 78602

Item 9. Notice Information (Instructions, Pages 28)**a. Individual Publishing the Notices**Prefix: Ms. Full Name (Last/First Name): Loeve, BeckieTitle: Environmental Supervisor - Gas Credential: Click to enter text.Organization Name: Lower Colorado River AuthorityMailing Address: P.O. Box ECity/State/Zip: Bastrop, Texas 78602Phone No: 512-663-4153Email: Beckie.Loeve@lcra.org**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: Beckie.Loeve@lcra.org☐ Fax: Click to enter text.☒ Regular Mail (USPS)Mailing Address: P.O. Box ECity/State/Zip Code: Bastrop, Texas 78602**c. Contact in the Notice**Prefix: Ms. Full Name (Last/First Name): Schreiber, WendyTitle: Manager, Plant Environmental SupportCredential: Click to enter text.Organization Name: Lower Colorado River AuthorityPhone No: 512-767-3560Email: Wendy.Schreiber@lcra.org**d. Public Viewing Location Information****Note:** If the facility or outfall is located in more than one county, provide a public viewing place for each county.Public building name: Llano County Library Location within the building: Events and Programs AreaPhysical Address of Building: 102 E. Haynie St.City: Llano, Texas 78643 County: Llano**e. Bilingual Notice Requirements**

This information is required for new, major amendment, minor amendment or minor modification, and renewal 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.

Call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice(s) is 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 ☒ N/A

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

- f. Plain Language Summary Template – Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment. Attachment: TCE-ADMIN-3-Plain Language Summary
- g. Complete one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment and include as an attachment. Attachment: N/A

Item 10. Regulated Entity and Permitted Site Information (Instructions Page 29)

- a. TCEQ issued Regulated Entity Number (RN), if available: RN100219468

Note: If your business site 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 to determine the RN or to see if the larger site may already be registered as a Regulated Entity. If the site is found, provide the assigned RN.

- b. Name of project or site (the name known by the community where located): Thomas C. Ferguson Power Plant

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

☒ Yes ☐ No ☐ N/A (new permit)

Note: 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.

- d. Owner of treatment facility:

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220

City/State/Zip: Austin TX 78767

Phone No: 512-473-3200

Email: Click to enter text.

- e. Ownership of facility: ☒ Public ☐ Private ☐ Both ☐ Federal

- f. Owner of land where treatment facility is or will be: Click to enter text.

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: Lower Colorado River Authority

Mailing Address: P.O. Box 220

City/State/Zip: Austin, TX 78767

Phone No: 512-473-3200

Email: Click to enter text.

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: N/A

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

Prefix: N/A Full Name (Last/First Name): Click to enter text.

or Organization Name: Click to enter text.

Mailing Address: Click to enter text.

City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

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

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

Prefix: N/A Full Name (Last/First Name): Click to enter text.

or Organization Name: Click to enter text.

Mailing Address: Click to enter text.

City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

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

Item 11. TDPES Discharge/TLAP Disposal Information (Instructions, Page 31)

a. Is the facility located on or does the treated effluent cross Native American 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

☐ Three-miles downstream information

☒ Applicant's property boundaries

☒ Treatment facility boundaries

☒ Labeled point(s) of discharge

☒ Highlighted discharge route(s)

☐ Effluent disposal site boundaries

☐ All wastewater ponds

☐ Sewage sludge disposal site

☐ New and future construction

Attachment: TCF-ADMIN-4-Topographic Map

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

☐ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: N/A

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

☒ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: [Click to enter text.](#)

e. Are the discharge route(s) in the existing permit correct?

☒ Yes ☐ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: [Click to enter text.](#)

f. City nearest the outfall(s): [Horseshoe Bay, Texas](#)

g. County in which the outfalls(s) is/are located: [Llano](#)

h. 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, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: [Click to enter text.](#)

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: [Llano, Burnet, Travis, Bastrop](#)

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

☐ Yes ☐ No or New Permit ☐ [Click to enter text.](#)

If no, or a new application, provide an accurate location description: [Click to enter text.](#)

j. City nearest the disposal site: [Click to enter text.](#)

k. County in which the disposal site is located: [Click to enter text.](#)

l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: [Click to enter text.](#)

m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: [Click to enter text.](#)

Item 12. Miscellaneous Information (Instructions, Page 33)

- 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 information:

Account no.: [Click to enter text.](#)

Total amount due: [Click to enter text.](#)

- c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: [Click to enter text.](#)

Amount due: [Click to enter text.](#)

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ0001369000

Applicant Name: Lower Colorado River Authority

Certification: I, Andrew Valencia, PE, 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): Andrew Valencia, PE

Signatory title: Sr. VP, Generation

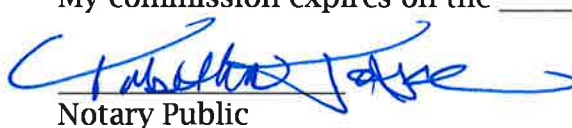
Signature: 
(Use blue ink)

Date: July 29, 2024

Subscribed and Sworn to before me by the said Andrew Valencia

on this 29th day of July, 2024.

My commission expires on the 11th day of January, 2026.


Notary Public



Travis
County, Texas

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Item 1. Affected Landowner Information (Instructions, Page 35)

- a. Attach a landowner 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 monofil) 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

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.](#)

Item 2. Original Photographs (Instructions, Page 37)

Provide original ground level photographs. Check the box next to each of the following items to indicate it is included.

- ☐ 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: [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: TCF-ADMIN-5-SPIF Form

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if mailing the payment. (Instructions, Page 36-37)

- 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[Click to enter text.](#)

1. Check or Money Order Number: [Click to enter text.](#)
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: [Click to enter text.](#)

Physical Address of Project or Site: [Click to enter text.](#)

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.

Attachment: [Click to enter text.](#)

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

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.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of industrial wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305 by checking the box next to the item. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until all items below are addressed.

- ☒ Core Data Form (TCEQ Form No. 10400)
(Required for all applications types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)
- ☒ Correct and Current Industrial Wastewater Permit Application Forms
(TCEQ Form Nos. 10055 and 10411. Version dated 5/10/2019 or later.)
- ☐ Water Quality Permit Payment Submittal Form (Page 14)
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)
- ☒ 7.5 Minute USGS Quadrangle Topographic Map Attached
(Full-size map if seeking "New" permit. 8 ½ x 11 acceptable for Renewals and Amendments.)
- ☒ N/A ☐ Current/Non-Expired, Executed Lease Agreement or Easement Attached
- ☒ N/A ☐ Landowners Map
(See instructions for landowner requirements.)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

- ☒ N/A ☐ Landowners Cross Reference List
(See instructions for landowner requirements.)
- ☒ N/A ☐ Landowners Labels or CD-RW attached
(See instructions for landowner requirements.)
- ☒ Original signature per 30 TAC § 305.44 - Blue Ink Preferred
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached.)
- ☒ Plain Language Summary

ADMINISTRATIVE REPORT

ATTACHMENTS

1. TCF-ADMIN-1 Epay Voucher
2. TCF-ADMIN-2 Core Data Form
3. TCF-ADMIN-3 Plain Language Summary
4. TCF-ADMIN-4 USGS Topographic Map
5. TCF-ADMIN-5 SPIF Form

TCF – ADMIN-1 ePay Vouchers

Transaction Information

Voucher Number: 713116
Trace Number: 582EA000617601
Date: 07/15/2024 05:42 PM
Payment Method: CC - Authorization 0000054242
Voucher Amount: \$2,000.00
Fee Type: WW PERMIT - MAJOR INDUSTRIAL FACILITY - RENEWAL
ePay Actor: JULIE PODBIELSKI
Actor Email: julie.podbielski@lcra.org
IP: 165.225.216.78

Payment Contact Information

Name: JULIE PODBIELSKI
Company: LOWER COLORADO RIVER AUTHORITY
Address: 3700 LAKE AUSTIN BLVD, AUSTIN, TX 78703
Phone: 512-461-4294

Site Information

RN: RN100219468
Site Name: THOMAS C FERGUSON POWER PLANT
Site Address: 2001 FERGUSON RD, HORSESHOE BAY, TX 78657
Site Location: SEE ADDRESS ABOVE

Customer Information

CN: CN600253637
Customer Name: LOWER COLORADO RIVER AUTHORITY
Customer Address: P O BOX 220, AUSTIN, TX 78767

Other Information

Program Area ID: 0001369000

Transaction Information

Voucher Number: 713117
Trace Number: 582EA000617601
Date: 07/15/2024 05:42 PM
Payment Method: CC - Authorization 0000054242
Voucher Amount: \$15.00
Fee Type: 30 TAC 305.53B WQ RENEWAL NOTIFICATION FEE
ePay Actor: JULIE PODBIELSKI
Actor Email: julie.podbielski@lcra.org
IP: 165.225.216.78

Payment Contact Information

Name: JULIE PODBIELSKI
Company: LOWER COLORADO RIVER AUTHORITY
Address: 3700 LAKE AUSTIN BLVD, AUSTIN, TX 78703
Phone: 512-461-4294



TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing 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.)		
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other
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 600253637		RN 100219468

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		N/A	
<input type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John) <i>If new Customer, enter previous Customer below:</i>					
Lower Colorado River Authority					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits) 746002915	
				10. DUNS Number (if applicable)	
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
12. Number of Employees		13. Independently Owned and Operated?			
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other:					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:					
P.O. Box 220					
City		Austin		State TX	
ZIP		78767		ZIP + 4 0220	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
N/A				Andrew.Valencia@lcra.org	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	

SECTION III: Regulated Entity Information**21. General Regulated Entity Information** (If 'New Regulated Entity' is selected, a new permit application is also required.)
☐ 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 Core 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.)

Thomas C. Ferguson Power Plant

23. Street Address of the Regulated Entity:

2001 Ferguson Rd.

(No PO Boxes)**City**

Horseshoe Bay

State

TX

ZIP

78657

ZIP + 4**24. County**

Llano

If no Street Address is provided, fields 25-28 are required.

25. Description to**Physical Location:****26. Nearest City****State****Nearest ZIP Code**

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:

30.55765

28. Longitude (W) In Decimal:

98.37219

Degrees

Minutes

Seconds

Degrees

Minutes

Seconds

30

33

27.524

98

22

19.896

29. Primary SIC Code**30. Secondary SIC Code****31. Primary NAICS Code****32. Secondary NAICS Code**

(4 digits)

(4 digits)

(5 or 6 digits)

(5 or 6 digits)

4911

221112

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

combined cycle power plant

34. Mailing

P.O. Box 220

Address:**City**

Austin

State

TX

ZIP

78767

ZIP + 4

0220

35. E-Mail Address:

Andrew.Valencia@lcra.org

36. Telephone Number**37. Extension or Code****38. Fax Number** (if applicable)

(512) 578-3591

() -

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

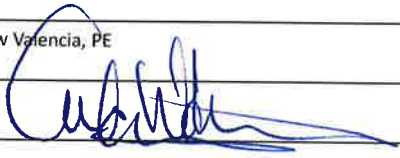
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
	WQ0001369000			

SECTION IV: Preparer Information

40. Name:	Julie Podbielski		41. Title:	Environmental Advisor
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(512) 730-5633		() -	Julie.Podbielski@lcra.org	

SECTION V: Authorized Signature

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

Company:	Lower Colorado River Authority	Job Title:	Sr. VP, Generation	
Name (In Print):	Andrew Valencia, PE	Phone:	(512) 578- 3591	
Signature:			Date:	July 29, 2024

TCF-ADMIN-3 Plain Language Summary

English:

The Lower Colorado River Authority (LCRA) (CN600253637) operates the Thomas C. Ferguson Power Plant (TCF) (RN100219468), which is a natural gas-fired combined cycle electric power generation facility that consists of two combustion turbines with a single steam turbine and has an approximate net generating capacity of 556 megawatts (MW). The facility is located at 2001 Ferguson Road, near Horseshoe Bay, Texas 78657.

This application is for a renewal to discharge 435,000,000 gallons per day of once through cooling water, auxiliary cooling water, stormwater, and also authorizes the following waste streams monitored in the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred to as "previously monitored effluents" (low-volume wastewater and metal cleaning waste) via Outfall 001. Low volume waste sources drain on a continuous and flow-variable basis via internal Outfall 101 and 201. Metal cleaning waste sources drain on a continuous and flow-variable basis via internal Outfall 401.

The discharge of once through cooling water via Outfall 001 and low volume waste and metal cleaning waste via Outfalls 101, 201, and 401 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: total residual chlorine, total dissolved solids, chloride, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from this discharge. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and water used for other plant operations is supplied by Lake Lyndon B. Johnson (LBJ). The City of Horseshoe Bay municipal water system (CN603175936, PWS No. 1500015) supplies the facility's potable water. Water from Lake LBJ is withdrawn at the intake structure and treated with chemicals to prevent biofouling and scaling, then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from chemical containment areas and other sources drains to the neutralization basin for treatment prior to discharge via Outfall 101. Low volume waste sources including boiler blowdown, reverse osmosis reject, and clarifier backwash discharge receive carbon dioxide sparging for pH adjustment as needed prior to disposal via Outfall 201. Water contained in secondary containments is routed through an oil and water separator prior to discharge via Outfall 201. Domestic wastewater is routed to the City of Horseshoe Bay Reclamation Plant, TPDES Permit No. WQ0011217001, for treatment and disposal. Metal-cleaning waste from equipment cleaning and low volume waste sources receives no treatment and may be disposed off-site or discharged via Outfall 401.

Español:

La Lower Colorado River Authority (LCRA) (CN600253637) opera la Central Eléctrica Thomas C. Ferguson (TCF) (RN100219468), que es una instalación de generación de energía eléctrica de ciclo combinado alimentada con gas natural que consta de dos turbinas de combustión con una sola turbina de vapor y tiene una capacidad neta de generación aproximada de 556 megawatts (MW). La instalación está ubicada en 2001 Ferguson Road, cerca de Horseshoe Bay, Texas 78657.

Esta solicitud es para una renovación para la descarga de 435,000,000 de galones por día de agua de enfriamiento de una sola pasada, agua de enfriamiento auxiliar y aguas pluviales, y también autoriza los siguientes flujos de desechos monitoreados en la instalación (desagües internos) antes de que se mezclen con las otras aguas residuales autorizadas para su descarga a través del desagüe principal 001, denominados "efluentes previamente monitoreados" (aguas residuales de bajo volumen y desechos de limpieza de metales) a través del desagüe 001. Las fuentes de residuos de bajo volumen drenan de forma

continua y con caudal variable a través de los desagües internos 101 y 201. Las fuentes de residuos de limpieza de metales drenan de forma continua y con caudal variable a través del desagüe interno 401.

La descarga de agua de enfriamiento de una sola pasada a través del desagüe 001 y los desechos de bajo volumen y los desechos de limpieza de metales a través de los desagües 101, 201 y 401 de esta instalación están sujetos a las pautas federales de limitación de efluentes de 40 CFR Parte 423. Los contaminantes que se esperan de estas descargas según 40 CFR Parte 423 son: cloro residual total, sólidos disueltos totales, cloruro, sólidos suspendidos totales, aceite y grasa, hierro total, cobre total y pH. También se espera que haya temperatura en esta descarga. Los contaminantes potenciales adicionales se incluyen en el Informe técnico de aplicación de aguas residuales industriales, hoja de trabajo 2.0.

El agua de enfriamiento y el agua utilizada para otras operaciones de la planta la suministra el lago Lyndon B. Johnson (LBJ). El sistema municipal de agua de la ciudad de Horseshoe Bay (CN603175936, PWS No. 1500015) suministra el agua potable de la instalación. El agua del lago LBJ se extrae en la estructura de admisión y se trata con productos químicos para evitar la bioobstrucción y la formación de incrustaciones, luego pasa a través de condensadores y equipos auxiliares de una sola pasada para enfriar el equipo y condensar el vapor de escape.

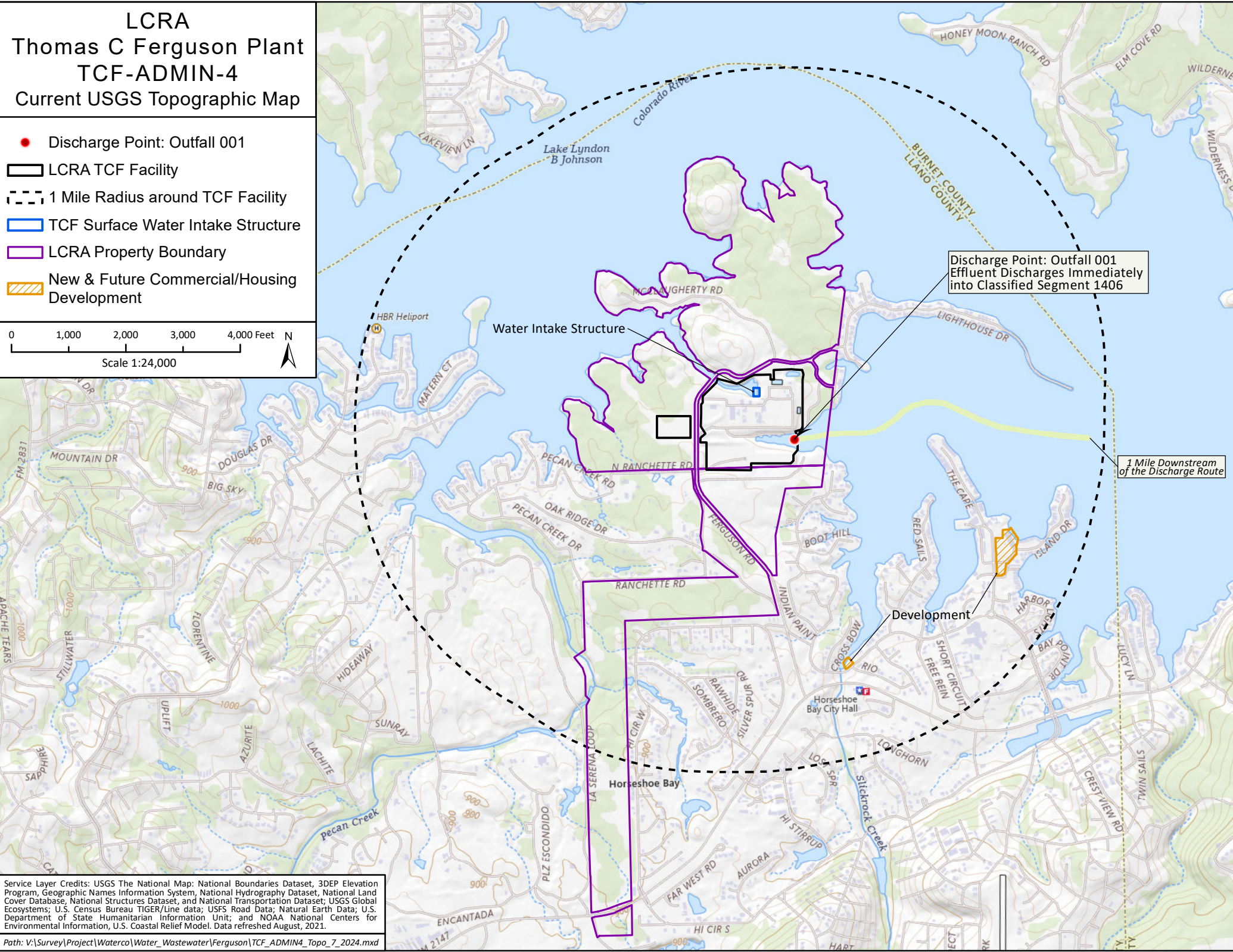
Las aguas residuales de bajo volumen de las áreas de contención química y otras fuentes se drenan a la cuenca de neutralización para su tratamiento antes de la descarga a través del desagüe 101. Las fuentes de residuos de bajo volumen, incluida la purga de la caldera, los desechos de ósmosis inversa y la descarga de retrolavado del clarificador, reciben un rociado de dióxido de carbono para el ajuste del pH según sea necesario antes de la eliminación a través del desagüe 201. El agua contenida en las contenciones secundarias se dirige a través de un separador de aceite y agua antes de la descarga a través del desagüe 201. Las aguas residuales domésticas se llevan a la Planta de Recuperación de la Ciudad de Horseshoe Bay, Permiso TPDES No. WQ0011217001, para su tratamiento y eliminación. Los residuos de limpieza de metales provenientes de la limpieza de equipos y las fuentes de residuos de bajo volumen no reciben tratamiento y pueden eliminarse fuera del sitio o descargarse a través del desagüe 401.

LCRA

Thomas C Ferguson Plant TCF-ADMIN-4 Current USGS Topographic Map

- Discharge Point: Outfall 001
- ▭ LCRA TCF Facility
- - - 1 Mile Radius around TCF Facility
- ▭ TCF Surface Water Intake Structure
- ▭ LCRA Property Boundary
- ▨ New & Future Commercial/Housing Development

0 1,000 2,000 3,000 4,000 Feet N
Scale 1:24,000



Discharge Point: Outfall 001
Effluent Discharges Immediately
into Classified Segment 1406

1 Mile Downstream
of the Discharge Route

Development

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.

Path: V:\Survey\Project\Waterco\Water_Wastewater\Ferguson\TCF_ADMIN4_Topo_7_2024.mxd

TCF-ADMIN-5 SPIF Form

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

FOR AGENCIES REVIEWING DOMESTIC OR 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 53)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Lower Colorado River Authority

Permit No. WQ00 01369000

EPA ID No. TX 0057576

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

2001 Ferguson Road, Horseshoe Bay, Texas 78657

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

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

First and Last Name: Wendy Schreiber

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Mgr., Plant Environmental Support

Mailing Address: P.O. Box 220

City, State, Zip Code: Austin, Texas 78767

Phone No.: 512-767-3560 Ext.: Click here to enter text. Fax No.: Click here to enter text.

E-mail Address: Wendy.Schreiber@lcra.org

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

N/A

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

Discharge is directly to Lake Lyndon B. Johnson in Segment No. 1406 of the Colorado River Basin.

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

See Attachment TCF-SPIF-1 U.S.G.S. Topographic Map and TCF-SPIF-2 Location Map

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

See Attachment TCF-SPIF-3 Original Photographs

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

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

No construction proposed with this renewal.

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

Existing site use includes operation of a power plant.

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






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

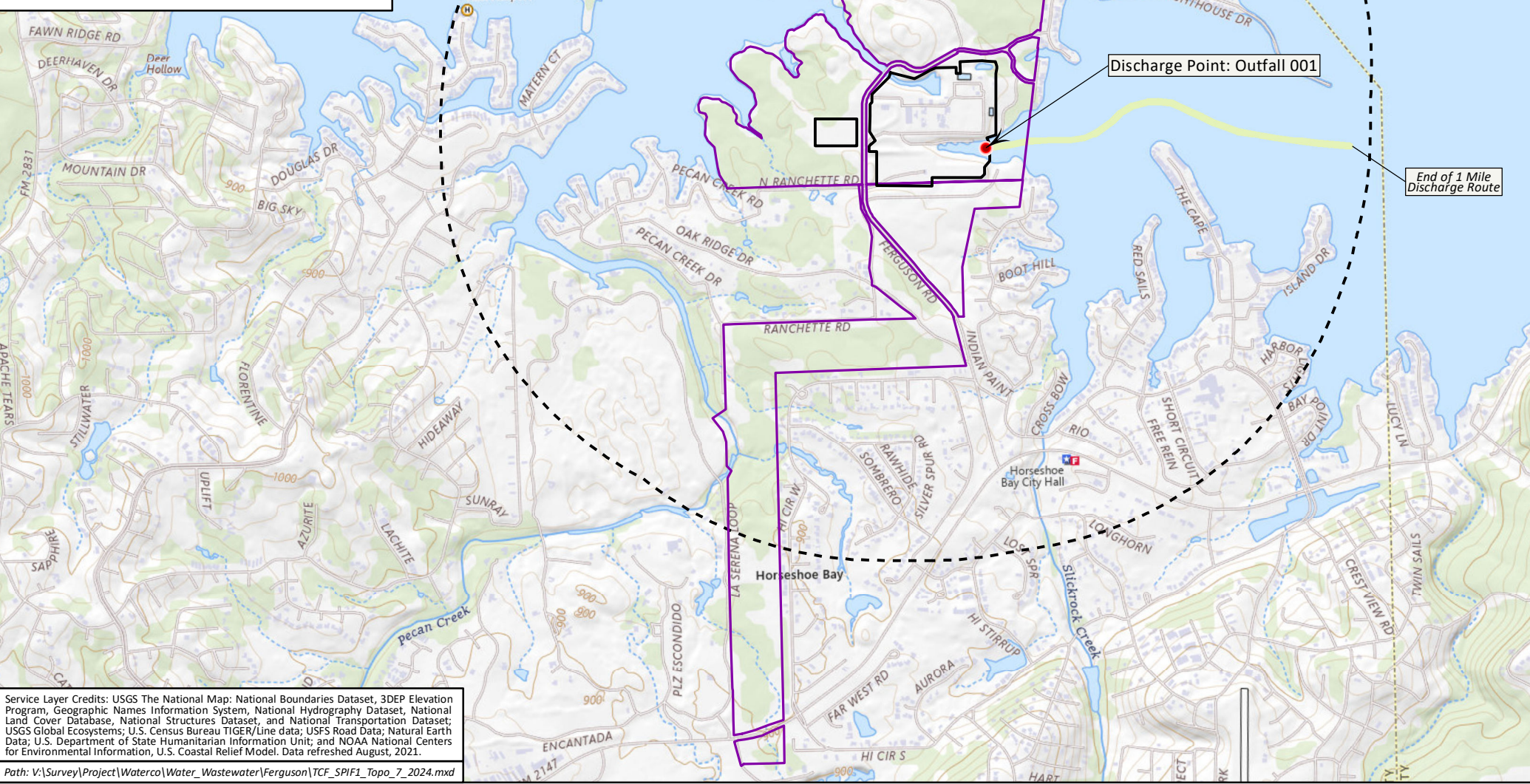
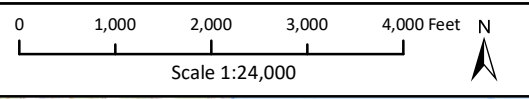
Click here to enter text.

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

Click here to enter text.

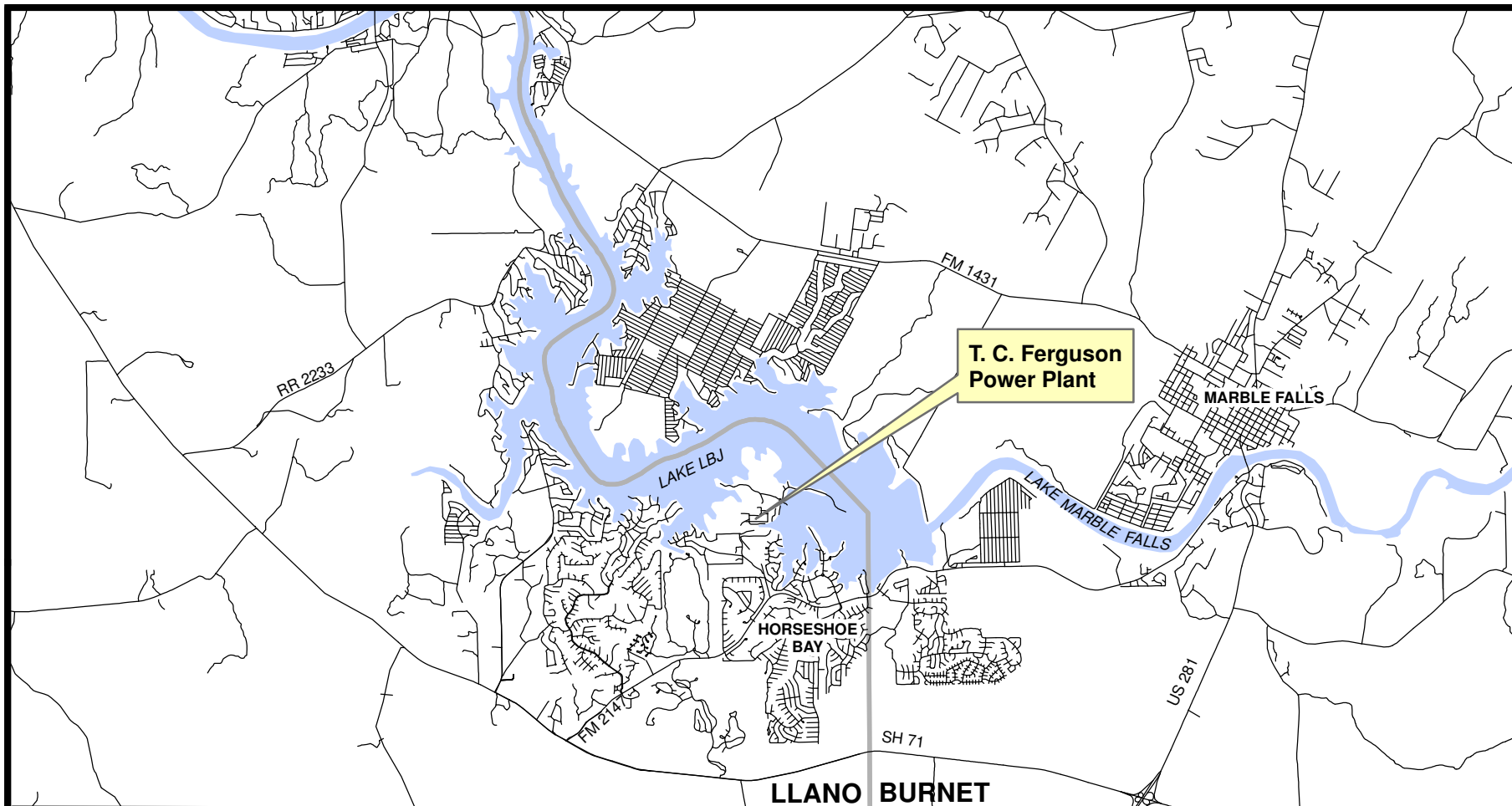
LCRA
Thomas C Ferguson Plant
TCF-SPIF-1
Current USGS Topographic Map

-  Discharge Point: Outfall 001
-  Discharge Route (1 Stream Mile)
-  LCRA TCF Facility
-  1 Mile Radius around TCF Facility
-  LCRA Property Boundary



Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.


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Legend

 County line



0 1 2 4
 Miles

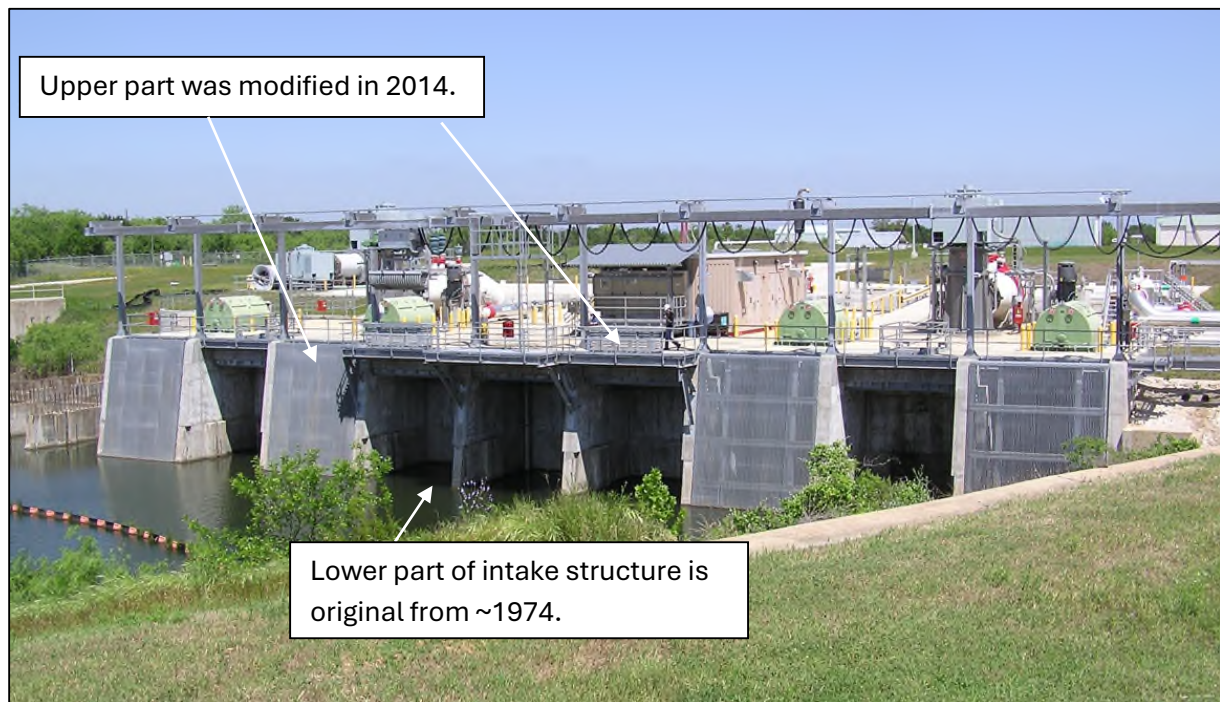
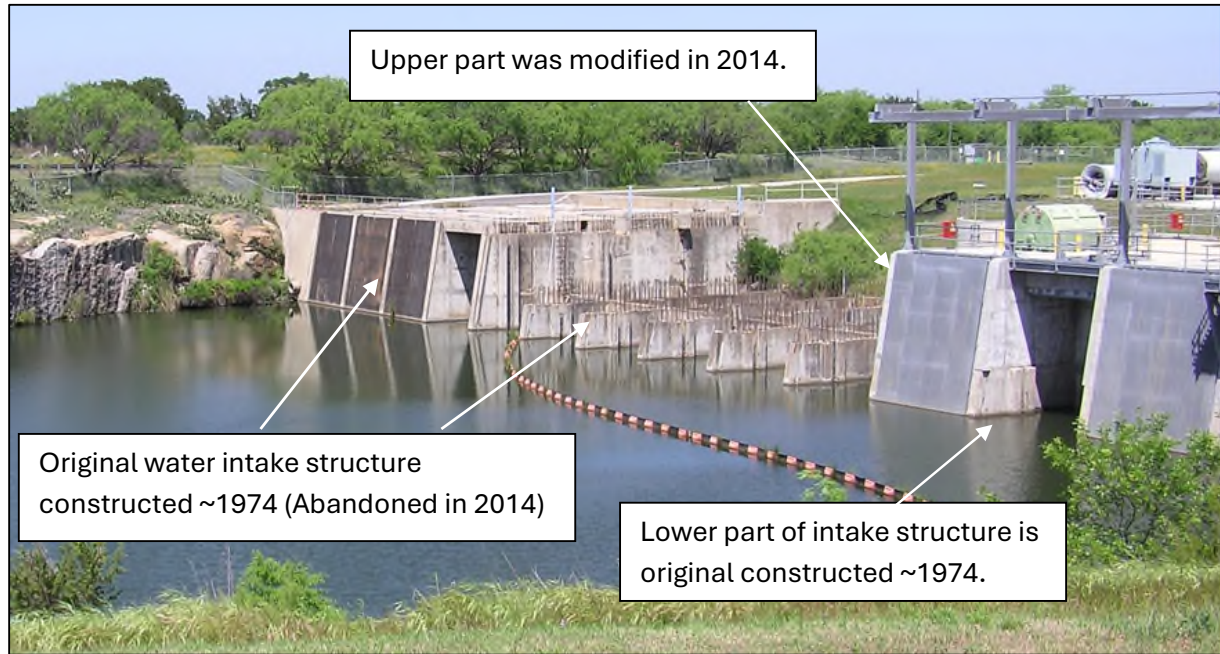
Lower Colorado River Authority

TCF-SPIF 02
**T. C. FERGUSON
POWER PLANT
LOCATION MAP**

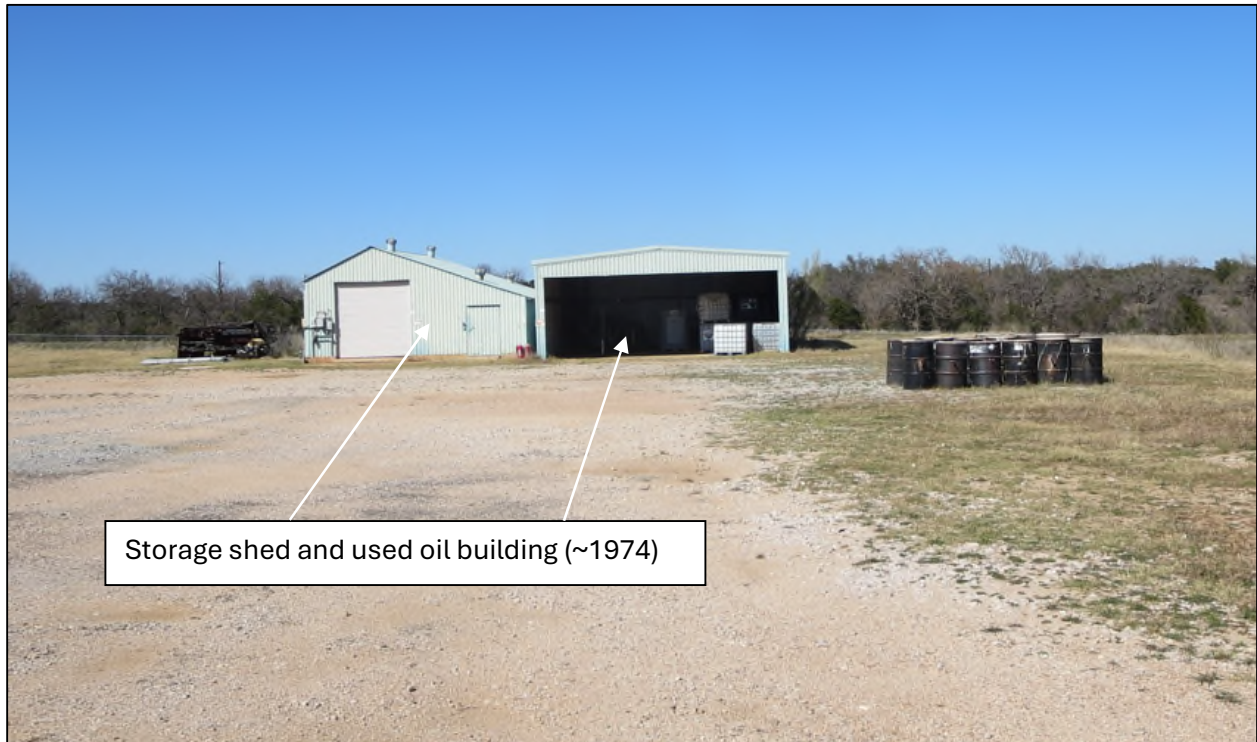
Scale: 1" = 10,000'

Attachment TCF-SPIF-3 Photographs
Photographs of Structures 50 Years or Older

Water Intake Structure



Out Buildings



Out Buildings (continued)





TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

TECHNICAL REPORT 1.0

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, please refer to the [Instructions for Completing the Industrial Wastewater Permit Application](https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html)¹ available on the TCEQ website. Please contact the Industrial Permits Team at 512-239-4671 with any questions about this form.

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.

Item 1. Facility/Site Information (Instructions, Page 39)

- 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 Thomas C. Ferguson Power Plant is a natural gas-fired combined cycle electric power generating facility. SIC Code is 4911.

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

Once-through cooling water and cooling water for plant equipment; water treatment processes (reverse osmosis, filters, clarifier, demineralization of water); storm water runoff; equipment wash water; metal cleaning wastes; and low volume waste sources including but not limited to water treatment, equipment blowdown, chemical containment areas, condensate from flue gas, and laboratory and sampling streams.

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
Natural Gas		Electricity
Water		
Aqueous Ammonia (CAS 1336-21-6)		

Attachment: Click to enter text.

- 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: TCF-TECH-1: Facility Map

- 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 FIRM Panel 48299C0550C dated May 2, 2012

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.](#)

Item 2. Treatment System (Instructions, Page 40)

- 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.

Wastewater Treatment Processes:

Neutralization basin: pH is adjusted as necessary

--Receives low volume waste sources

--Discharges through Outfall 101

Carbon dioxide sparging: pH is adjusted as necessary (usually when influent lake water has high pH)

--Used to neutralize effluent prior to discharge through Outfall 201

Oil/Water Separator: treatment of oily wastewater

--Treats stormwater from secondary containments

--Discharges through Outfall 201

Oil/Water Separator (if needed): treatment wastewater with potential oil and grease

--Treats low volume wastes/metal cleaning wastes

--Discharges through Outfall 401

Water Treatment Processes:

Cooling water (once through and auxiliary): chemical treatment to reduce biofouling and scaling, including chlorination

--Used for once-through circulating water and auxiliary cooling water

--Defoaming agent may be added prior to discharge

--Discharge through Outfall 001

High purity feed water: reverse osmosis (RO) system with mixed bed demineralizers

--Treatment processes include chemical additives, filtration, reverse osmosis, clarifiers, settling pit, and demineralization to produce steam cycle make-up water

--Depending on process, either discharges to Outfall 201 or neutralization basin (which discharges to Outfall 101)

- 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: TCF-TECH-2: Water Balance

Item 3. Impoundments (Instructions, Page 40)

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 40-42, 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. Attach additional copies of the Impoundment Information table, if needed.

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)	N/A			
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)				

Parameter	Pond #	Pond #	Pond #	Pond #
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**.

1. Liner data

☐ Yes ☐ No ☐ Not yet designed

2. Leak detection system or groundwater monitoring data

☐ Yes ☐ No ☐ Not yet designed

3. Groundwater impacts

☐ Yes ☐ No ☐ Not yet designed

NOTE: Item b.3 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.](#)

Item 4. Outfall/Disposal Method Information (Instructions, Page 42)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge, 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/or 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 Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
001	30.55639	-98.36972
101	30.55678	-98.37166
201	30.55678	-98.37166
401	30.55678	-98.37166

Outfall Location Description

Outfall No.	Location Description
001	Lake LBJ discharge canal
101	Side of disengaging box adjacent to Lake LBJ discharge canal
201	Side of disengaging box adjacent to Lake LBJ discharge canal
401	Disengaging box adjacent to Lake LBJ discharge canal

Description of Sampling Point(s) (if different from Outfall location)

Outfall No.	Description of sampling point
001	North edge of Lake LBJ discharge canal (see TCF-TECH-1: Facility Map for locations)
101	Neutralization basin
201	Sump sampling port at disengaging box
401	Sampling will occur at one of two sumps (see TCF-TECH-1: Facility Map for locations)

Outfall Flow Information - Permitted and Proposed

Outfall No.	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	435	435	N/A	N/A	N/A
101	Report	Report	N/A	N/A	N/A
201	Report	Report	N/A	N/A	N/A
401	Report	Report	N/A	N/A	N/A

Outfall Discharge – Method and Measurement

Outfall No.	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Y	N	Pump Curve
101	N	Y	Batch Volume
201	N	Y	Weir
401	Y	N	Estimate

Outfall Discharge – Flow Characteristics

Outfall No.	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	30	12
101	Y	N	N	~3	30	12
201	N	Y	N	24	30	12
401	Y	N	N	Varies	Varies	Varies

Outfall Wastestream Contributions

Outfall No. 001

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Once-through and auxiliary cooling water	264.2	99.94
Internal Outfall 101 (previously monitored effluent)	0.01	<0.01
Internal Outfall 201 (previously monitored effluent)	0.01	0.05
Internal Outfall 401 (previously monitored effluent)	Varies	<0.01
Stormwater (based on rainfall in area of 27.3 inches in 2023)	0.01	<0.01

Outfall No. 101

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Low volume waste sources	0.0111	98.2
Stormwater (based on rainfall in area of 27.3 inches in 2023)	0.0002	1.8

Outfall No. 201

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Low volume waste sources	0.1383	99.7
Stormwater (based on rainfall in area of 27.3 inches in 2023)	0.0006	0.3

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Metal cleaning waste (discharged in a batch of ~10,000 gallons)	Varies (infrequent)	Varies
Low volume waste sources	Varies (infrequent)	Varies

Attachment: [Click to enter text.](#)

Item 5. Blowdown and Once-Through Cooling Water Discharges (Instructions, Page 43)

a. Indicate if the facility currently or proposes to:

- ☐ Yes ☒ No Use cooling towers that discharge blowdown or other wastestreams
☒ Yes ☐ No Use boilers that discharge blowdown or other wastestreams
☒ Yes ☐ No Discharge once-through cooling water

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

b. If yes to any of the above, attach an 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.

In addition to each SDS, attach a summary of the above information for each specific wastestream and the associated chemical additives. Specify which outfalls are affected.

Attachment: [TCF-TECH-3: Safety Data Sheets](#)

c. Cooling Towers and Boilers

If the facility currently or proposes to use cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s), complete the following table.

Cooling Towers and Boilers

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Cooling Towers	0		

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Boilers	2	17,280	40,000

Item 6. Stormwater Management (Instructions, Page 44)

Will any existing/proposed outfalls 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 a manner which may result in exposure of the activities or materials to stormwater: Industrial process activity is conducted either under roof or in containment facilities that drain to process outfalls. Stormwater from non-process areas is routed to a stormwater detention pond.

Item 7. Domestic Sewage, Sewage Sludge, and Septage Management and Disposal (Instructions, Page 44)

Domestic Sewage - Waste and wastewater from humans or household operations that is discharged to a wastewater collection system or otherwise enters a treatment works.

- 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 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.
City of Horseshoe Bay	WQ0011217001
	NPDES TX00982

Item 8. Improvements or Compliance/Enforcement Requirements (Instructions, Page 45)

- 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.

Item 9. Toxicity Testing (Instructions, Page 45)

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: TPDES Permit WQ0001369000 requires that whole effluent testing (biomonitoring) be performed on the effluent from Outfall 001. Requirements include chronic static renewal survival and reproduction test using the water flea, chronic static renewal 7-day larval survival and growth test using the fathead minnow, acute 24-hour static toxicity test using the water flea, and acute 24-hour static toxicity test using the fathead minnow. Results have previously been sent to TCEQ.

Additionally, attach a copy of all tests performed which have not been submitted to the TCEQ or EPA. Attachment: N/A

Item 10. Off-Site/Third Party Wastes (Instructions, Page 45)

- 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 yes, provide responses to Items 10.b through 10.d below.

If no, proceed to Item 11.

- 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.

Item 11. Radioactive Materials (Instructions, Page 46)

- 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 Name	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 Name	Concentration (pCi/L)
N/A	

Item 12. Cooling Water (Instructions, Page 46)

- 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

1. 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	001			
Owner	LCRA			
Operator	LCRA			

2. 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: PWS No. [Click to enter text.](#)

3. Cooling water is/will be obtained from a reclaimed water source?

☐ Yes ☒ No

If **no**, continue. If **yes**, provide the Reuse Authorization No. and stop here: [Click to enter text.](#)

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

☐ Yes ☒ No

If **no**, proceed to Item 12.d. If **yes**, provide the actual intake flow of the Independent Supplier's CWIS that is/will be used to provide water for cooling purposes and proceed: [Click to enter text.](#)

d. 316(b) General Criteria

1. The CWIS(s) used to provide water for cooling purposes to the facility has or will have a cumulative design intake flow of 2 MGD or greater.

☒ Yes ☐ No

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

☒ Yes ☐ No

3. The CWIS(s) withdraw(s)/propose(s) 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 **meets** the minimum criteria to be subject to the full requirements of Section 316(b) of the CWA. 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 Section 316(b) of the CWA; however, a determination is required based upon BPJ. Proceed to Item 12.e.

- e. The facility does not meet the minimum requirements to be subject to the fill requirements of Section 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.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ.

- f. Oil and Gas Exploration and Production

1. The facility is subject to requirements at 40 CFR Part 435, Subparts A or D.

☐ Yes ☒ No

If **yes**, continue. If **no**, skip to Item 12.g.

2. The facility is an existing facility as defined at 40 CFR § 125.92(k) or a new unit at an existing facility as defined at 40 CFR § 125.92(u).

☐ Yes ☐ No

If **yes**, complete Worksheet 11.0, Items 1.a, 1.b.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ. If **no**, skip to Item 12.g.3.

- g. Compliance Phase and Track Selection

1. Phase I - New facility subject to 40 CFR Part 125, Subpart I

☐ Yes ☒ No

If **yes**, check the box next to the 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.](#)

2. Phase II - Existing facility subject to 40 CFR Part 125, Subpart J

☒ Yes ☐ No

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

3. Phase III – New facility subject to 40 CFR Part 125, Subpart N

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection and provide the requested information.

☐ Track I – Fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2.

☐ Track I – Not a fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Item 2 (except CWIS latitude/longitude under Item 2.a).

☐ Track II – Fixed facility

- Attach information required by 40 CFR § 125.136(c) and complete Worksheet 11.0, Items 2 and 3.

Attachment: Click to enter text.

Item 13. Permit Change Requests (Instructions, Page 48)

This item is only applicable to existing permitted facilities.

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 describe each change individually.

Click to enter text.

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

☐ Yes ☒ No

If **yes**, list and describe each change individually.

Click to enter text.

Item 14. Laboratory Accreditation (Instructions, Page 49)

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

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

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

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

CERTIFICATION:

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

Printed Name: Andrew Valencia, PE

Title: Sr. Vice President, Generation

Signature: _____

Date: _____

July 29, 2024

INDUSTRIAL WASTEWATER PERMIT APPLICATION 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).

Item 1. Categorical Industries (Instructions, Page 53)

Is this facility subject to any 40 CFR categorical ELGs outlined on page 53 of the instructions?

☒ Yes ☐ No

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

40 CFR Effluent Guideline

Industry	40 CFR Part
Steam Electric Power Generating	423

Item 2. Production/Process Data (Instructions, Page 54)

NOTE: For all TPDES permit applications requesting individual permit coverage for discharges of oil and gas exploration and production wastewater (discharges into or adjacent to water in the state, falling under the Oil and Gas Extraction Effluent Guidelines – 40 CFR Part 435), see Worksheet 12.0, Item 2 instead.

a. Production Data

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

Production Data

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units
N/A			

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*.

Percentage of Total Production

Subcategory	Percent of Total Production	Appendix A and B - Metals	Appendix A - Cyanide
N/A			

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

N/A

Item 3. Process/Non-Process Wastewater Flows (Instructions, Page 54)

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.

Authorized for discharge under this permit:
Once-through cooling water; auxiliary cooling water for plant equipment; water treatment processes (reverse osmosis, filters, clarifier, demineralization of water); storm water runoff; equipment wash water; metal cleaning wastes; and low volume waste sources including but not limited to water treatment, equipment blowdown, chemical containment areas, condensate from flue gas, and laboratory and sampling streams.
Metal cleaning waste may also be disposed of off-site using a third party.

Item 4. New Source Determination (Instructions, Page 54)

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
Once through cooling water	40 CFR 423	.15(h)	1974
Low volume waste	40 CFR 423	.15(h)	1974
Metal cleaning waste	40 CFR 423	.15(h)	1974

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

2.0: POLLUTANT ANALYSIS

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.

Item 1. General Testing Requirements (Instructions, Page 55)

- 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): 2/29/2024-6/4/2024
- ☒ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- 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: TCF-TECH-4-Laboratory Information

Item 2. Specific Testing Requirements (Instructions, Page 56)

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 58)

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

Table 1 for Outfall No.: 001 Samples are (check one): ☒ Composite ☒ Grab (indicated by *)

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)	2.00	2.00	2.00	2.00
CBOD (5-day)	2.00	2.00	2.00	2.00
Chemical oxygen demand	27.0	33.4	15.0	19.7
Total organic carbon	5.23	4.79	4.75	4.99
Dissolved oxygen *	9.54	9.46	8.73	9.51
Ammonia nitrogen	0.0211	0.0852	0.0230	.0289
Total suspended solids	8.6	4.00	6.00	7.70
Nitrate nitrogen	0.0186	0.0175	0.0238	.0128
Total organic nitrogen	0.623	0.525	0.519	0.842
Total phosphorus	0.0249	<0.0200	0.0329	0.0313
Oil and grease *	<2.50	<2.50	<2.50	<2.50
Total residual chlorine *	0.00	0.00	0.00	0.00

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
Total dissolved solids	256	251	267	252
Sulfate	18.9	19.1	18.8	18.8
Chloride	39.0	39.0	39.1	38.9
Fluoride	0.182	0.184	0.185	0.188
Total alkalinity (mg/L as CaCO3)	157	156	156	156
Temperature (°F) *	72.14	69.67	74.05	75.38
pH (standard units) *	8.43	8.42	8.22	8.54

Table 2 for Outfall No.: **001** Samples are (check one): ☒ Composite ☒ Grab (indicated by *)

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total	55.8	11.3	21.7	207	2.5
Antimony, total	<5.00	<5.00	<5.00	<5.00	5
Arsenic, total	0.840	0.802	0.782	0.891	0.5
Barium, total	72.9	72.9	69.8	87.0	3
Beryllium, total	<0.500	<0.500	<0.500	<0.500	0.5
Cadmium, total	<1.00	<1.00	<1.00	<1.00	1
Chromium, total	<0.625	<0.625	<0.625	0.755	3
Chromium, hexavalent	<3.00	<3.00	<3.00	<3.00	3
Chromium, trivalent	<3.62	<3.62	<3.62	<3.62	N/A
Copper, total	<0.625	<2.00	<2.00	3.53	2
Cyanide, available amenable*	<10.0	<10.0	<10.0	<10.0	2/10
Lead, total	<0.500	<0.500	<0.500	1.66	0.5
Mercury, total	0.000371	0.000262	0.000489	0.000994	0.005/0.0005
Nickel, total	<2.00	<2.00	<2.00	<2.00	2
Selenium, total	<5.00	<5.00	<5.00	<5.00	5
Silver, total	<0.500	<0.500	<0.500	<0.500	0.5
Thallium, total	<0.500	<0.500	<0.500	<0.500	0.5
Zinc, total	<5.00	<5.00	<5.00	8.43	5.0

TABLE 3 (Instructions, Page 58)

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Acrylonitrile	<50.0	<50.0	<50.0	<50.0	50
Anthracene	<0.995	<1.00	<0.980	<0.965	10
Benzene	<10.0	<10.0	<10.0	<10.0	10
Benzidine	<19.9	<20.1	<19.6	<19.3	50
Benzo(a)anthracene	<0.995	<1.00	<0.980	<0.965	5
Benzo(a)pyrene	<0.995	<1.00	<0.980	<0.965	5
Bis(2-chloroethyl)ether	<0.995	<1.00	<0.980	<0.965	10
Bis(2-ethylhexyl)phthalate	<7.46	<7.52	<7.35	<7.24	10
Bromodichloromethane [Dichlorobromomethane]	<10.0	<10.0	<10.0	<10.0	10
Bromoform	<10.0	<10.0	<10.0	<10.0	10
Carbon tetrachloride	<2.00	<2.00	<2.00	<2.00	2
Chlorobenzene	<10.0	<10.0	<10.0	<10.0	10
Chlorodibromomethane [Dibromochloromethane]	<10.0	<10.0	<10.0	<10.0	10
Chloroform	<10.0	<10.0	<10.0	<10.0	10
Chrysene	<0.995	<1.00	<0.980	<0.965	5
m-Cresol [3-Methylphenol] reported as 3&4	<6.17	<6.22	<6.08	<5.98	10
o-Cresol [2-Methylphenol]	<5.17	<5.22	<5.10	<5.02	10
p-Cresol [4-Methylphenol] reported as 3&4	<6.17	<6.22	<6.08	<5.98	10
1,2-Dibromoethane	<2.0	<2.0	<2.0	<2.00	10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<5.00	<5.00	<5.00	<5.00	10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<5.00	<5.00	<5.00	<5.00	10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<5.00	<5.00	<5.00	<5.00	10
3,3'-Dichlorobenzidine	<4.98	<5.00	<4.90	<4.83	5

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
1,2-Dichloroethane	<10.0	<10.0	<10.0	<10.0	10
1,1-Dichloroethene [1,1-Dichloroethylene]	<10.0	<10.0	<10.0	<10.0	10
Dichloromethane [Methylene chloride]	<20.0	<20.0	<20.0	<20.0	20
1,2-Dichloropropane	<10.0	<10.0	<10.0	<10.0	10
1,3-Dichloropropene [1,3-Dichloropropylene] (reported as cis and trans)	<10.0	<10.0	<10.0	<10.0	10
2,4-Dimethylphenol	<2.39	<2.41	<2.35	<2.32	10
Di-n-Butyl phthalate	<7.46	<7.42	<7.35	<7.24	10
Ethylbenzene	<10.0	<10.0	<10.0	<10.0	10
Fluoride	182	184	185	188	500
Hexachlorobenzene	<0.995	<1.00	<0.980	<0.965	5
Hexachlorobutadiene	<0.995	<1.00	<0.980	<0.965	10
Hexachlorocyclopentadiene	<0.995	<9.03	<8.82	<8.69	10
Hexachloroethane	<0.995	<1.00	<0.980	<0.965	20
Methyl ethyl ketone (2-Butanone)	<50.0	<50.0	<50.0	<50.0	50
Nitrobenzene	<0.995	<1.00	<0.980	<0.965	10
N-Nitrosodiethylamine	<0.995	<1.00	<0.980	<0.965	20
N-Nitroso-di-n-butylamine	<0.995	<1.00	<0.980	<0.965	20
Nonylphenol	<29.6	<29.8	<29.6	<31.2	333
Pentachlorobenzene	<0.995	<1.00	<0.980	<0.965	20
Pentachlorophenol	<0.995	<1.00	<0.980	<0.965	5
Phenanthrene	<0.995	<1.00	<0.980	<0.965	10
Polychlorinated biphenyls (PCBs) (**)	<0.194	<0.200	<0.199	<0.193	0.2
Pyridine	<5.37	<5.42	<5.29	<5.21	20
1,2,4,5-Tetrachlorobenzene	<0.995	<1.00	<0.980	0.965	20
1,1,2,2-Tetrachloroethane	<10.0	<10.0	<10.0	<10.0	10
Tetrachloroethene [Tetrachloroethylene]	<10.0	<10.0	<10.0	<10.0	10
Toluene	<10.0	<10.0	<10.0	<10.0	10
1,1,1-Trichloroethane	<10.0	<10.0	<10.0	<10.0	10
1,1,2-Trichloroethane	<10.0	<10.0	<10.0	<10.0	10
Trichloroethene	<10.0	<10.0	<10.0	<10.0	10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
[Trichloroethylene]					
2,4,5-Trichlorophenol	<0.995	<1.00	<0.980	0.965	50
TTHM (Total trihalomethanes)	<10.0	<10.0	<10.0	<10.0	10
Vinyl chloride	<10.0	<10.0	<10.0	<10.0	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 58-59)

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)

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

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)

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

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): ☐ Composite ☐ Grab

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

TABLE 5 (Instructions, Page 59)

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 that may contain pesticides or herbicides, check N/A.

☒ N/A

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

Samples are (check one): ☐ Composite ☐ Grab

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Endosulfan I (<i>alpha</i>)					0.01
Endosulfan II (<i>beta</i>)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (<i>alpha</i>)					0.05
Hexachlorocyclohexane (<i>beta</i>)					0.05
Hexachlorocyclohexane (<i>gamma</i>) [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 59)

Completion of Table 6 is required for all external outfalls.

Table 6 for Outfall No.: **001**

Samples are (check one): ☒ Composite ☐ Grab

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.151	-	-	-	400
Color (PCU) - true	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	-	-	-	—
Nitrate-Nitrite (as N)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.0427	-	-	-	—
Sulfide (as S)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<0.05	-	-	-	—
Sulfite (as SO ₃)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	-	-	-	—
Surfactants	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<0.200	-	-	-	—
Boron, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.088	-	-	-	20
Cobalt, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.000345	-	-	-	0.3
Iron, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.371	-	-	-	7
Magnesium, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	207	-	-	-	20
Manganese, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.098	-	-	-	0.5
Molybdenum, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<0.001	-	-	-	1
Tin, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<0.005	-	-	-	5
Titanium, total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<0.150	-	-	-	30

TABLE 7 (Instructions, Page 60)

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
<input type="checkbox"/> Adhesives and Sealants		<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Aluminum Forming	467	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Auto and Other Laundries		<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Battery Manufacturing	461	<input type="checkbox"/> Yes	No	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Coal Mining	434	No	No	No	No
<input type="checkbox"/> Coil Coating	465	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Copper Forming	468	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Electric and Electronic Components	469	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Electroplating	413	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Explosives Manufacturing	457	No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Foundries		<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Gum and Wood Chemicals - Subparts A,B,C,E	454	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No	No
<input type="checkbox"/> Gum and Wood Chemicals - Subparts D,F	454	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Inorganic Chemicals Manufacturing	415	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Iron and Steel Manufacturing	420	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Leather Tanning and Finishing	425	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Mechanical Products Manufacturing		<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Nonferrous Metals Manufacturing	421,471	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Oil and Gas Extraction - Subparts A, D, E, F, G, H	435	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Ore Mining - Subpart B	440	No	<input type="checkbox"/> Yes	No	No
<input type="checkbox"/> Organic Chemicals Manufacturing	414	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Paint and Ink Formulation	446,447	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Pesticides	455	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Petroleum Refining	419	<input type="checkbox"/> Yes	No	No	No
<input type="checkbox"/> Pharmaceutical Preparations	439	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Photographic Equipment and Supplies	459	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Plastic and Synthetic Materials Manufacturing	414	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Plastic Processing	463	<input type="checkbox"/> Yes	No	No	No
<input type="checkbox"/> Porcelain Enameling	466	No	No	No	No
<input type="checkbox"/> Printing and Publishing		<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> Pulp and Paperboard Mills - Subpart C	430	<input type="checkbox"/> *	<input type="checkbox"/> Yes	<input type="checkbox"/> *	<input type="checkbox"/> Yes
<input type="checkbox"/> Pulp and Paperboard Mills - Subparts F, K	430	<input type="checkbox"/> *	<input type="checkbox"/> Yes	<input type="checkbox"/> *	<input type="checkbox"/> *
<input type="checkbox"/> Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> *	<input type="checkbox"/> *
<input type="checkbox"/> Pulp and Paperboard Mills - Subparts I, J, L	430	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> *	<input type="checkbox"/> Yes
<input type="checkbox"/> Pulp and Paperboard Mills - Subpart E	430	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> *
<input type="checkbox"/> Rubber Processing	428	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Soap and Detergent Manufacturing	417	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input checked="" type="checkbox"/> Steam Electric Power Plants	423	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	No	No
<input type="checkbox"/> Textile Mills (Not Subpart C)	410	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
<input type="checkbox"/> Timber Products Processing	429	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Page 60)

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.: **001**

Samples are (check one): ☒ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acrolein	<50.0	<50.0	<50.0	<50.0	50
Acrylonitrile	<50.0	<50.0	<50.0	<50.0	50
Benzene	<10.0	<10.0	<10.0	<10.0	10
Bromoform	<10.0	<10.0	<10.0	<10.0	10
Carbon tetrachloride	<2.0	<2.00	<2.0	<2.0	2
Chlorobenzene	<10.0	<10.0	<10.0	<10.0	10
Chlorodibromomethane (Dibromochloromethane)	<10.0	<10.0	<10.0	<10.0	10
Chloroethane	<10.0	<10.0	<10.0	<10.0	50
2-Chloroethylvinyl ether	<10.0	<10.0	<10.0	<10.0	10
Chloroform	<10.0	<10.0	<10.0	<10.0	10
Dichlorobromomethane [Bromodichloromethane]	<10.0	<10.0	<10.0	<10.0	10
1,1-Dichloroethane	<10.0	<10.0	<10.0	<10.0	10
1,2-Dichloroethane	<10.0	<10.0	<10.0	<10.0	10
1,1-Dichloroethylene [1,1-Dichloroethene]	<10.0	<10.0	<10.0	<10.0	10
1,2-Dichloropropane	<10.0	<10.0	<10.0	<10.0	10
1,3-Dichloropropylene [1,3-Dichloropropene] reported as cis and trans	<10.0	<10.0	<10.0	<10.0	10
Ethylbenzene	<10.0	<10.0	<10.0	<10.0	10
Methyl bromide [Bromomethane]	<20.0	<20.0	<20.0	<20.0	50
Methyl chloride [Chloromethane]	<20.0	<20.0	<20.0	<20.0	50
Methylene chloride [Dichloromethane]	<20.0	<20.0	<20.0	<20.0	20
1,1,2,2-Tetrachloroethane	<10.0	<10.0	<10.0	<10.0	10
Tetrachloroethylene [Tetrachloroethene]	<10.0	<10.0	<10.0	<10.0	10
Toluene	<10.0	<10.0	<10.0	<10.0	10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]	<10.0	<10.0	<10.0	<10.0	10
1,1,1-Trichloroethane	<10.0	<10.0	<10.0	<10.0	10
1,1,2-Trichloroethane	<10.0	<10.0	<10.0	<10.0	10
Trichloroethylene [Trichloroethene]	<10.0	<10.0	<10.0	<10.0	10
Vinyl chloride	<10.0	<10.0	<10.0	<10.0	10

* Indicate units if different from µg/L.

Table 9 for Outfall No.: 001

Samples are (check one): ☒ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
2-Chlorophenol	<0.995	<1.00	<0.980	<0.965	10
2,4-Dichlorophenol	<0.995	<1.00	<0.980	<0.965	10
2,4-Dimethylphenol	<2.39	<2.41	<2.35	<2.32	10
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	<7.96	<8.02	<7.84	<7.72	50
2,4-Dinitrophenol	<8.96	<9.03	<8.82	<8.69	50
2-Nitrophenol	<0.995	<1.00	<0.980	<0.965	20
4-Nitrophenol	<0.995	<1.00	<0.980	<0.965	50
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	<2.39	<2.41	<2.35	<2.32	10
Pentachlorophenol	<0.995	<1.00	<0.980	<0.965	5
Phenol	0.0280	<1.50	<1.47	<1.45	10
2,4,6-Trichlorophenol	<0.995	<1.00	<0.980	<0.965	10

* Indicate units if different from µg/L.

Table 10 for Outfall No.: N/A

Samples are (check one): ☐ Composite ☐ Grab

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
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
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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
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

Samples are (check one): ☐ Composite ☐ Grab

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
Endrin					0.02
Endrin aldehyde					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
PCB 1242					0.2
PCB 1254					0.2

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
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: [Click to enter text.](#)

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete of Table 12 is required for external outfalls, as directed below. (Instructions, Pages 59-60)

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 (Ronnell) 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.](#)

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.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

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

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
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, Pages 60-61)

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

☐ Yes ☒ No

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.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

4.0: RECEIVING WATERS

This worksheet is required for all TPDES permit applications.

Item 1. Domestic Drinking Water Supply (Instructions, Page 80)

- 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:

1. The legal name of the owner of the drinking water supply intake: City of Meadow Lakes (PWS TX0270038), City of Cottonwood Shores (PWS TX0270013), City of Horseshoe Bay (PWS TX1500015)
2. The distance and direction from the outfall to the drinking water supply intake: Information on Attachment: TCF-TECH-5 Surface Water Intake Map

- 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.

**See Attachment TCF-TECH-5 Surface Water Intake Map

Item 2. Discharge Into Tidally Influenced Waters (Instructions, Page 80)

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.

Item 3. Classified Segment (Instructions, Page 80)

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

☒ Yes ☐ No

If **yes**, stop here and do not 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.

Item 4. Description of Immediate Receiving Waters (Instructions, Page 80)

- 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:

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.](#)

Item 5. General Characteristics of Water Body (Instructions, Page 81)

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

<input type="checkbox"/> oil field activities	<input type="checkbox"/> urban runoff
<input type="checkbox"/> agricultural runoff	<input type="checkbox"/> septic tanks
<input type="checkbox"/> upstream discharges	<input type="checkbox"/> other, specify: Click to enter text.

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

<input type="checkbox"/> livestock watering	<input type="checkbox"/> industrial water supply
<input type="checkbox"/> non-contact recreation	<input type="checkbox"/> irrigation withdrawal
<input type="checkbox"/> domestic water supply	<input type="checkbox"/> navigation
<input type="checkbox"/> contact recreation	<input type="checkbox"/> picnic/park activities
<input type="checkbox"/> fishing	<input type="checkbox"/> 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

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

11.0: COOLING WATER SYSTEM INFORMATION

This worksheet is required for all TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12.

Item 1. Cooling Water System Data (Instructions, Page 104)

a. Complete the following table with information regarding the cooling water system.

Cooling Water System Data

Parameter	Volume (include units)
Total DIF	288.2
Total AIF	253.4 MG average annual volume of water withdrawn (2020-2023)
Intake Flow Use(s) (%)	
Contact cooling	0%
Non-contact cooling	99.9%
Process Wastewater	0.1%
Other	0

b. Attach the following information:

1. A narrative description of the design and annual operation of the facility's cooling water system and its relationship to the CWIS(s).
2. A scaled map depicting the location of each CWIS, impoundment, intake pipe, and canals, pipes, or waterways used to convey cooling water to, or within, the cooling water system. Provide the latitude and longitude for each CWIS and any intake pipe(s) on the map. Indicate the position of the intake pipe within the water column.
3. A description of water reuse activities, if applicable, reductions in total water withdrawals, if applicable, and the proportion of the source waterbody withdrawn (on a monthly basis).
4. Design and engineering calculations prepared by a qualified professional and data to support the information provided in above item a.
5. Previous year (a minimum of 12 months) of AIF data.
6. A narrative description of existing or proposed impingement and entrainment technologies or operation measures and a summary of their performance, including, but not limited to, reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.

Attachment: TCF-TECH-6 Cooling Water

Item 2. Cooling Water Intake Structure(s) Data (Instructions, Page 105)

- a. Complete the following table with information regarding each cooling water intake structure (this includes primary and make-up CWIS(s)).

Cooling Water Intake Structure(s) Data

CWIS ID	001			
DIF (include units)	288.2 MG/day			
AIF (include units)	253.4 MG average annual volume of water withdrawn (2020-2023)			
Intake Flow Use(s) (%)				
Contact cooling	0%			
Non-contact cooling	99.9%			
Process Wastewater	0.1%			
Other	0			
Latitude (decimal degrees)	30.55872 N			
Longitude (decimal degrees)	98.37191 W			

- b. Attach the following information regarding the CWIS(s):
1. A narrative description of the configuration of each CWIS, annual and daily operation, including any seasonal changes, and where it is located in the water body and in the water column.
 2. Engineering calculations for each CWIS.

Attachment: TCF-TECH-6 Cooling Water

Item 3. Source Water Physical Data (Instructions, Page 105)

- a. Complete the following table with information regarding the CWIS(s) source waterbody (this includes primary and make-up CWIS(s)).

Source Waterbody Data

CWIS ID	001			
Source Waterbody	Lake Lyndon B. Johnson			
Mean Annual Flow	Impoundment: See Attachment TCF-TECH-6 for details on source water body.			
Source	N/A			

- b. Attach the following information regarding the source waterbody.
1. A narrative description of the source water for each CWIS, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports this

determination of the water body type where each cooling water intake structure is located.

2. A narrative description of the source waterbody's hydrological and geomorphological features.
3. Scaled drawings showing the physical configuration of all source water bodies used by the facility, including the source waterbody's hydrological and geomorphological features. NOTE: The source waterbody's hydrological and geomorphological features may be included on the map submitted for item 1.b.ii of this worksheet.
4. A description of the methods used to conduct any physical studies to determine the intake's area of influence within the waterbody and the results of such studies.

Attachment: TCF-TECH-6 Cooling Water

Item 4. Operational Status (Instructions, Page 106)

- a. Is this application for a power production or steam generation facility?

☒ Yes ☐ No

If **no**, proceed to Item 4.b. If **yes**, provide the following information as an attachment:

1. Describe the operating status of each individual unit, including age, capacity utilization rate (or equivalent) for the previous five years (a minimum of 60 months), and any seasonal changes in operation.
2. Describe any extended or unusual outages or other factors which significantly affect current data for flow, impingement, entrainment.
3. Identify any operating unit with a capacity utilization rate of less than 8 percent averaged over a contiguous period of two years (a minimum of 24 months).
4. Describe any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes of fuel type.

Attachment: TCF-TECH-6 Cooling Water

- b. Process Units

1. Is this application for a facility which has process units that use cooling water (other than for power production or steam generation)?

☐ Yes ☒ No

If **no**, proceed to Item 4.c. If **yes**, continue.

2. Does the facility use or intend to use reductions in flow or changes in operations to meet the requirements of *40 CFR § 125.94(c)*?

☐ Yes ☐ No

If **no**, proceed to Item 4.c. If **yes**, attach descriptions of the following information:

- Individual production processes and product lines
- The operating status, including age of each line and seasonal operation

- Any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
- Any major upgrades completed within the last 15 years and plans or schedules for decommissioning or replacement of process units or production processes and product lines.

Attachment: N/A

c. Is this an application for a nuclear power production facility?

☐ Yes ☒ No

If **no**, proceed to Item 4.d. If **yes**, attach a description of completed, approved, or scheduled upgrades and the Nuclear Regulatory Commission relicensing status for each unit at the facility.

Attachment: Click to enter text.

d. Is this an application for a manufacturing facility?

☐ Yes ☒ No

If **no**, proceed to Worksheet 11.1. If **yes**, attach descriptions of current and future production schedules and any plans or schedules for any new units planned within the next five years (a minimum of 60 mos)

Attachment: N/A

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

11.1: IMPINGEMENT MORTALITY

This worksheet is required for all TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID: 001

Item 1. Impingement Compliance Technology Selection (Instructions, Page 107)

Check the box next to the method of compliance for the Impingement Mortality Standard selected by the facility.

- ☐ Closed-cycle recirculating system (CCRS) [40 CFR § 125.94(c)(1)]
- ☒ 0.5 ft/s Through-Screen Design Velocity [40 CFR § 125.94(c)(2)] – Proceed to Worksheet 11.2
- ☐ 0.5 ft/s Through Screen Actual Velocity [40 CFR § 125.94(c)(3)]
- ☐ Existing offshore velocity cap [40 CFR § 125.94(c)(4)] – Proceed to Worksheet 11.2
- ☐ Modified traveling screens [40 CFR § 125.94(c)(5)]
- ☐ System of technologies [40 CFR § 125.94(c)(6)]
- ☐ Impingement mortality performance standard [40 CFR § 125.94(c)(7)]
- ☐ De minimis rate of impingement [40 CFR § 125.94(c)(11)]
- ☐ Low capacity utilization power-generation facilities [40 CFR § 125.94(c)(12)]

If 0.5 ft/s Through-Screen Design Velocity [40 CFR § 125.94(c)(2)] or existing offshore velocity cap [40 CFR § 125.94(c)(4)] was selected, proceed to Worksheet 11.2. Otherwise, continue to Item 2.

Item 2. Impingement Compliance Technology Information (Instructions, Page 107)

Complete the following sections based on the selection made for item 1 above.

a. CCRS [40 CFR § 125.94(c)(1)]

- ☐ Check this box to confirm the CWS meets the definition of CCRS located at 40 CFR § 125.91(c) and provide a response to the following questions.

1. Does the facility use or propose to use a CWIS to replenish water losses to the CWS?

- ☐ Yes ☐ No

If **no**, proceed to item a.2. If **yes**, provide the following information as an attachment and continue.

- CWIS ID
- 12 months of intake flow data for any CWIS used for make-up intake flows to replenish cooling water losses, excluding intakes for losses due to blowdown, drift, or evaporation.

- A narrative description of any physical or operational measures taken to minimize make-up withdrawals.

Attachment: [Click to enter text.](#)

NOTE: Do not complete a separate Worksheet 11.1 for a make-up CWIS.

2. Does the facility use or propose to use cooling towers?

☐ Yes ☐ No

If **no**, proceed to Worksheet 11.2. If **yes**, provide the following information and proceed to Worksheet 11.2.

- Average number of cycles of concentration (COCs) prior to blowdown:

Average COCs Prior to Blowdown

Cooling Tower ID				
COCs				

- Attach COC monitoring data for each cooling tower from the previous year (a minimum of 12 months): [Click to enter text.](#)
- Maximum number of COCs each cooling tower can accomplish based on design of the system.

Calculated COCs Prior to Blowdown

Cooling Tower ID				
COCs				

- Describe conditions that may limit the number of COCs prior to blowdown, if any, including but not limited to permit conditions: [Click to enter text.](#)

b. 0.5 ft/s Through Screen Actual Velocity [*40 CFR § 125.94(c)(3)*]

Provide daily intake flow measurement monitoring data from the previous year (a minimum of 12 months) as an attachment and proceed to Worksheet 11.2.

Attachment: [Click to enter text.](#)

c. Modified traveling screens [*40 CFR § 125.94(c)(5)*]

Provide the following information as an attachment and proceed to Worksheet 11.2.

1. A description of the modified traveling screens and associated equipment.
2. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods
3. Biological sampling data from the previous two years (a minimum of 24 months).

Attachment: [Click to enter text.](#)

d. System of technologies [*40 CFR § 125.94(c)(6)*] or impingement mortality performance standard [*40 CFR § 125.94(c)(7)*]

Provide the following information as an attachment and proceed to Worksheet 11.2.

1. A description of the system of technologies used or proposed for use by the facility to

achieve compliance with the impingement mortality standard.

2. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods.
3. Biological sampling data from the previous two years (a minimum of 24 months).

Attachment: [Click to enter text.](#)

- e. De minimis rate of impingement [*40 CFR § 125.94(c)(11)*]

Provide the following information and proceed to Worksheet 11.2.

1. Attach monitoring data from the previous year (a minimum of 12 months) of intake flow measured at a frequency of 1/day on days of operation.

Attachment: [Click to enter text.](#)

2. If the rate of impingement caused by the CWIS is extremely low (at an organism or age-one equivalent count), attach supplemental information to Worksheet 11.0, item 1.b.6. to support this determination.

Attachment: [Click to enter text.](#)

- f. Low capacity utilization power-generation facilities [*40 CFR § 125.94(c)(12)*]

Attach monthly utilization data from the previous 2 years (a minimum of 24 months) for each operating unit and proceed to Worksheet 11.2.

Attachment: [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

11.2: SOURCE WATER BIOLOGICAL DATA

This worksheet is required for all TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each source waterbody of a CWIS for which a facility has selected an Impingement Mortality Technology Option described at *40 CFR §§ 125.94(c)(1)-(7)*.

Name of source waterbody: Lake Lyndon B. Johnson (LBJ)

Item 1. Species Management (Instructions, Page 109)

- a. The facility has obtained an incidental take permit for its cooling water intake structure(s) from the USFWS or the NMFS.

☐ Yes ☒ No

If yes, attach any information submitted in order to obtain that permit, which may be used to supplement the permit application information requirements of paragraph *40 CFR § 125.95(f)*.

Attachment: N/A

- b. Is the facility requesting a waiver from application requirements at *40 CFR § 122.21(r)(4)* in accordance with *40 CFR § 125.95* for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent?

☒ Yes ☐ No

If yes, attach a copy of the most recent managed fisheries report to TPWD, or equivalent.

Attachment: TCF-TECH-7 TPWD Managed Fisheries Report

- c. There are no federally listed threatened or endangered species or critical habitat designations within the source water body.

☒ True ☐ False

Item 2. Source Water Biological Data (Instructions, Page 109)

New Facilities (Phase I, Track I and II)

- Provide responses to all items in this section and stop.

Existing Facilities (Phase II)

- If the answer to 1.b. above was no, provide responses to all items in this section and proceed to Worksheet 11.3.
- If the answer to 1.b. was yes and 1.c. was true, do not complete any items in this section and proceed to Worksheet 11.3.
- If the answer to 1.b. was yes and 1.c. was false, attach a response for any item in this section that is not contained within the most recent TPWD, or equivalent and proceed to Worksheet 11.3.

Attachment: N/A

- a. A list of the data requested at *40 CFR § 122.21(r)(4)(ii)* through *(vi)* that are not available, and efforts made to identify sources of the data.
- b. Provide a list of species (or relevant taxa) in the vicinity of the CWIS and identify the following information regarding each species listed.
 - all life stages and their relative abundance,
 - identification of all species and life stages that would be most susceptible to impingement and entrainment,
 - forage base,
 - significance to commercial fisheries,
 - significance to recreational fisheries,
 - primary period of reproduction,
 - larval recruitment, and
 - period of peak abundance for relevant taxa.
- c. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the CWIS(s).
- d. Identify all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the CWIS(s).
- e. Documentation of any public participation or consultation with federal or state agencies undertaken.

The following is required for existing facilities only. Include the following information with the above listed attachment.

- f. Identify any protective measures and stabilization activities that have been implemented and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- g. A list of fragile species, as defined at *40 CFR § 125.92(m)*, at the facility. The applicant need only identify those species not already identified as fragile at *40 CFR § 125.92(m)*.

NOTE: New units at an existing facility are not required to resubmit this information if the cooling water withdrawals for the operation of the new unit are from an existing intake.

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET

11.3: ENTRAINMENT

This worksheet is required for all TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID: 001

Item 1. Applicability (Instructions, Page 111)

Is the AIF of the CWIS identified above greater than, or equal to, 125 MGD?

☒ Yes ☐ No

- If **no** or the facility has selected CCRS [40 CFR § 125.94(c)(1)] for the impingement mortality compliance method, complete Item 2 and stop here.
- If **yes** and the facility is **seeking a waiver** from application requirements in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent, complete item 2 and stop.
- If **yes** and the facility is **not seeking a waiver** from application requirements in accordance with 40 CFR § 125.95, complete item 2 and provide any required and completed studies listed in item 3. For any required studies in item 3 that are not complete, provide a detailed explanation for the delay and an anticipated schedule for completion and submittal.

Item 2. Existing Entrainment Performance Studies (Instructions, Page 111)

Attach any previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-facility entrainment survival, and other entrainment studies.

Attachment: TCF-TECH-8 Existing Entrainment Studies

Item 3. Facility Entrainment Performance Studies (Instructions, Page 111)

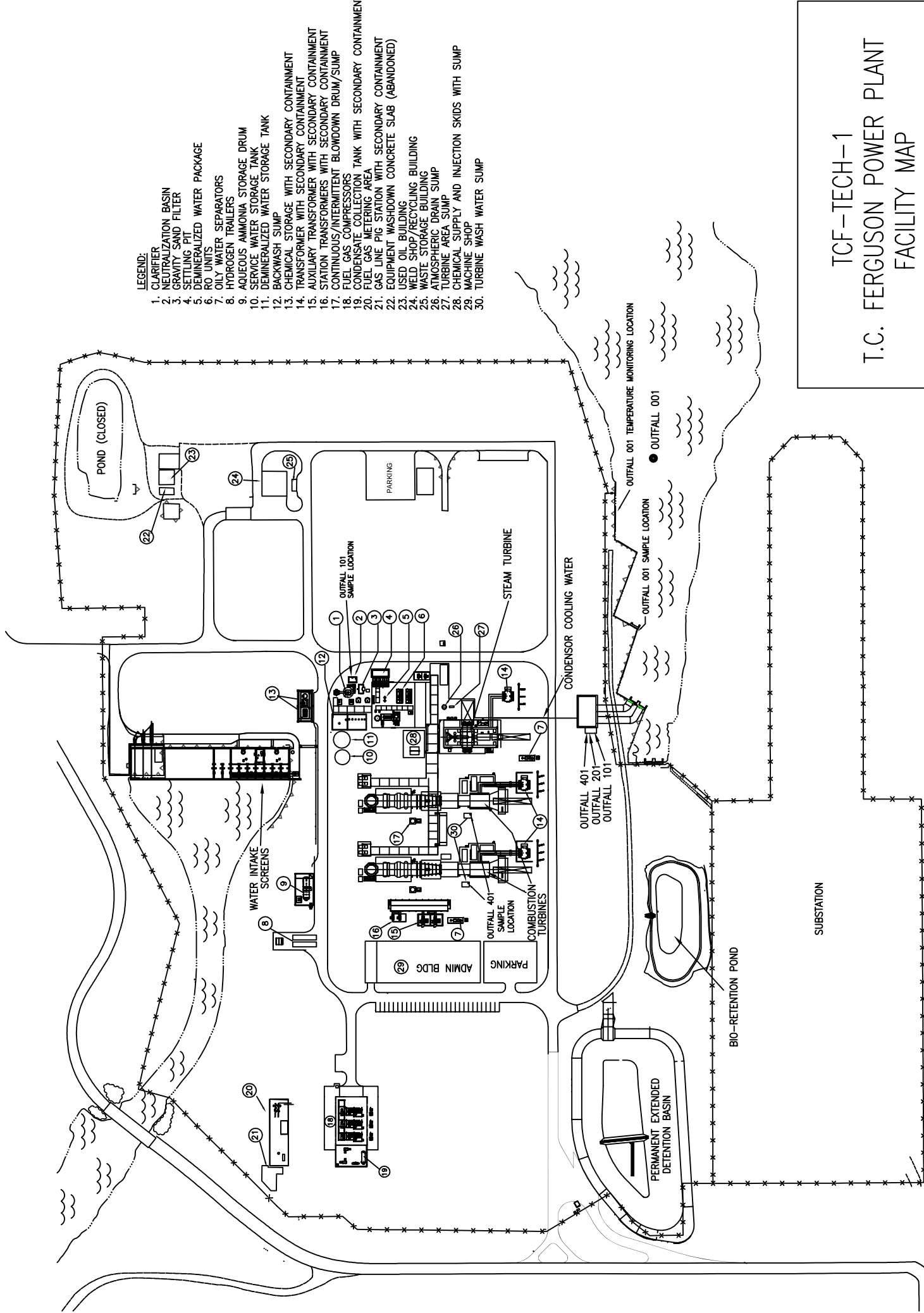
- Attach an entrainment characterization study, as described at 40 CFR § 122.21(r)(9). N/A
- Attach a comprehensive feasibility study, as described as 40 CFR § 122.21(r)(10). Click to enter text.
- Attach a benefits valuation study, as described as 40 CFR § 122.21(r)(11). Click to enter text.
- Attach a non-water quality environmental and other impacts study, as described as 40 CFR § 122.21(r)(12). Click to enter text.
- Attach a peer review analysis, as described as 40 CFR § 122.21(r)(13). Click to enter text.

TECHNICAL REPORT

ATTACHMENTS

1. TCF-TECH-1 Facility Map
2. TCF-TECH-2 Water Balance
3. TCF-TECH-3 Safety Data Sheets
4. TCF-TECH-4 Laboratory Information
5. TCF-TECH-5 Surface Water Intakes Map
6. TCF-TECH-6 Cooling Water
7. TCF-TECH-7 TPWD Fisheries Management Survey Report
8. TCF-TECH-8 Existing Entrainment Studies

TCF-TECH-1 T.C. FERGUSON POWER PLANT FACILITY MAP



Attachment TCF-TECH-03: Safety Data Sheets

Number	Product Name	Product Use	Product Classification	Chemical Composition	CAS Registry Number	Weight Percent	Product/ Active Ingredient Half-Life	Plant Quantity Uses (lbs/year) ¹	Product Use Frequency	Concentration of Product (lbs/MG) in Outfall 001 in Waste Stream	Ecological Information (Species/Exposure/TestType/Value/TestDescriptor)	Outfall	Waste Stream
Ferguson Power Plant Safety Data Sheet Information ¹													
1	DIXICHLOR MAX/Sodium hypochlorite (12.5%)	Bleach/Source of chlorine for circulating and aux cooling water	From Safety Data Sheet (SDS): Stable under normal circumstances. No data on persistence and degradability. Bioaccumulative potential not measured.	Sodium hypochlorite Sodium hydroxide Sodium chloride	7681-52-9 1310-73-2 7647-14-5	12.5-15.6% 9-10% 0.1-5%	No data is available on SDS.	Dependent on concentration of residual bleach of up to 1.0 ppm Current Feed Rates: -Circulating Cooling Water - 40 mL/min -Aux Cooling Water - 10mL/min	2 hours/day for 7 days/week simultaneously	Varies	TOXICITY TO AQUATIC ORGANISMS: 7681-52-9: Pimephales promelas// 96 hrs// LC50// 0.08 mg/L 7681-52-9: Daphnia magna// 48 hrs// EC50// 0.032 mg/L 1310-73-2: Poecilia reticulata// 96 hrs// LC50// 196 mg/L 1310-73-2: Ceriodaphnia dubia// 48 hrs// EC50// 40.38mg/L 7647-14-5: Freshwater Fish// 96 hrs// LC50// 1100 mg/L 7647-14-5: Daphnia magna// 48 hrs// EC50// 3310 mg/L	001	Circulating Water
2	ChemTreat CL4635	Intake Scale and Corrosion Inhibitor	From SDS: Non-Hazardous Substance	From SDS: Components are either non-hazardous or in concentration of less than 1%	From SDS: N/A	N/A	No data is available on SDS.	Current Daily Usage Rate: 27.76 gallons/day	2 hours/day for 7 days/week	Varies	TOXICITY TO AQUATIC ORGANISMS: Ceriodaphnia dubia// 48 hrs// LC50// 1005 mg/L Fathead minnow// 96 hrs// LC50// 6325 mg/L	001	Circulating Water
3	ChemTreat BL1799	1100 HRSG and 2100 HRSG HP/IP Drum Water Treatment	From SDS: Decomposes into oxides of phosphorus and oxides of carbon. Persistence and biodegradability not determined.	4:1 Trisodium phosphate	7601-54-9 1310-73-2	1.0-5.0% 1.0-5.0%	No data is available on SDS.	Dependent upon pH of HP and IP Drum Current Daily Usage Rate: -1.14 gallons/day for 1100 HRSG -1.43 gallons/day for 2100 HRSG	Continuously when on-line	Varies	TOXICITY TO AQUATIC ORGANISMS: Not tested	201	HRSG (Boiler) Blowdown
4	ChemTreat BL1534	Condensate and Feedwater Treatment/Metal Corrosion Protection	From SDS: No data on persistence and degradability. No data on bioaccumulative potential.	Ammonium Hydroxide	1336-21-6	10-30%	No data is available on SDS.	Dependent upon pH of Condensate Current Daily Usage Rate: 7.57 gallons/day	Continuously when on-line	Varies	TOXICITY TO AQUATIC ORGANISMS: Ceriodaphnia dubia// 48 hrs// LC50// 1005 mg/L Fathead minnow// 96 hrs// LC50// 8.2 mg/L	201	HRSG (Boiler) Blowdown

Acronyms:
CAS - Chemical Abstracts Service
hrs - Hours
lbs - Pounds
mg - Milligrams
LC50 - The effluent concentration which is lethal to 50 percent of the test organisms in the time period prescribed by the test.
EC50 - The concentration required to induce a biological response halfway between the baseline and maximum after a specified time period.

MG - Million Gallons
NOx - Nitrogen Oxide
SDS - Safety Data Sheet
ug - Micrograms

HRSG - Heat Recovery Steam Generator
HP - High pressure
IP - Intermediate pressure
ppm - parts per million

Notes:
1. Per permit application instructions, chemicals used in boilers and cooling water are included. Chemicals used in reverse osmosis system and other systems are not included.

Prepared by Julie Podbielski and Donna Lee, LCRA
Checked by: Wendy Schreiber, LCRA

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product identifier: DIXICHLOR MAX
Synonyms: Bleach, Sodium Hypochlorite, Sodium Hypochlorite 12.5%
Intended use: Swimming pool chlorinator, Hard surface cleaner, Water treatment chemical, Biocides
Uses Advised Against: None identified. This is a pesticide product, do not use in a pesticide application that is not included on the label.

Company Identification DPC Industries, Inc.
DPC Enterprises, LP
DXI Industries, Inc.
DX Terminals
PO Box 24600
Houston, TX 77229-4600

Emergency
CHEMTREC (USA) (800) 424-9300
24 hour Emergency Telephone No. (281) 457-4888
www.dxgroup.com

2. Hazard identification of the product

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation Serious eye damage/eye irritation Specific target organ toxicity, single exposure	Category 1 Category 1 Category 3 respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute hazard Hazardous to the aquatic environment, long-term hazard	Category 1 Category 2

Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.



Signal Word	Danger
Hazard Statements	Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. May be corrosive to metals
Precautionary Statements	
Prevention	Do not breathe mist / vapors / spray. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves / eye protection / face protection. Use in well ventilated area.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN: Remove / Take off immediately all contaminated clothing. Wash with plenty of soap and water. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician if you feel unwell. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. Immediately call a POISON CENTER or doctor / physician. Wash contaminated clothing before reuse. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight.
Disposal	Dispose of contents / container in accordance with local / national regulations.

Safety Data Sheet

3. Composition/information on ingredients

Synonyms: Bleach, Sodium Hypochlorite, Sodium Hypochlorite 12.5%

Ingredient	CAS Number	Percent (%)	NOTES
Sodium hypochlorite.	7681-52-9	12.5 - 15.6	Substance classified with a health or environmental hazard.
Sodium chloride	7647-14-5	9 - 10	Substance classified with a health or environmental hazard.
Sodium hydroxide	1310-73-2	0.1 - 5	Substance classified with a health or environmental hazard. Substance with a workplace exposure limit.

4. First Aid Measures

General	Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Inhalation	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
Eyes	Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart. Get medical attention. Remove contact lenses if present and easy to do - continue rinsing.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion	If accidentally swallowed obtain immediate medical attention. Rinse mouth. Keep at rest. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content does not get into lungs.
Most important symptoms and effects, both acute and delayed	
Overview	Corrosive effects. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Recommended Extinguishing media	Alcohol resistant foam, CO ² , dry chemical powder, water spray. Do not use water jet.
Special hazards arising from the substance or mixture	Hydrogen chloride and chlorine. Chlorine gas rate of decomposition increases with the concentration with temperatures above 85 °F (30 °C). Do not breathe mist / vapors / spray.
Advice for fire-fighters	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. ERG Guide No. 154

Safety Data Sheet

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Local authorities should be contacted if significant spill cannot be contained.
Environmental precautions	Do not allow spills to enter drains or watercourses.
Methods and material for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

7. Handling and storage

Precautions for safe handling	Wear appropriate personal protective equipment. Do not get in eyes, on skin, on clothing. Chemical attack increases with solution strength. Use with adequate ventilation. Observe good industrial hygiene practices. Do not apply heat or direct sunlight. Temperature and product concentration affect product quality and decomposition rates.
Conditions for safe storage, including any incompatibilities	Handle containers carefully to prevent damage and spillage. Keep container tightly closed. Store in a cool and well-ventilated place. Store in a corrosive resistant container. Consult container manufacturer for additional guidance. Store away from and do not mix with incompatible materials such as acids, ammonia, urea, oxidizers, organics and metals such as nickel, copper, tin, aluminum and iron.

8. Exposure controls and personal protection

Exposure Control Parameters

CAS No.	Ingestion	Source	Value
1310-73-2	Sodium hydroxide	OSHA	TWA 2 mg/m3
		ACGIH	Ceiling: 2 mg/m3
		NIOSH	C 2 mg/m3
7647-14-5	Sodium chloride	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
7681-52-9	Sodium hypochlorite.	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit

Individual protection measures, such as personal protective equipment

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
Eyes	Wear face shield with safety glasses with side shields and/or safety goggles.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical Impervious gloves.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn. Eye wash and safety shower must be available when handling this product
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Safety Data Sheet

9. Physical and chemical properties

Appearance	Clear, pale yellow, or greenish Liquid
Odor	Pungent, chlorine odor
Odor threshold	0.9 mg/m ³
pH	12 - 13
Melting point / freezing point	-3 °F (-19.4 °C)
Initial boiling point and boiling range	Decomposes above 230 °F (110 °C)
Flash Point	Nonflammable
Evaporation rate (Ether = 1)	Not Established
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (mmHg)	17.5 (@ 20° C)
Vapor Density	Not Established
Specific Gravity	1.20 - 1.40
Solubility in Water	Complete
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature (°C)	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
VOC %	Not Measured
Other information	No other relevant information.

10. Stability and reactivity

Reactivity	Hazardous Polymerization will not occur.
Chemical stability	Stable under normal circumstances.
Possibility of hazardous reactions	No data available.
Conditions to avoid	Contact with incompatible materials. Acid contact will produce chlorine gas.
Incompatible materials	Any acidic material, ammonia, urea, oxidizers, organics and metals such as nickel, copper, tin, aluminum and iron.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Sodium hypochlorite (7681-52-9)	5,000.00, Rat - Category: 5	10,000.00, Rabbit - Category: NA	10.50, Rat - Category: 4	No data available	No data available
Sodium chloride (7647-14-5)	1,350.00, Rabbit - Category: 4	100.00, Rat - Category: 2	40.00, Mouse - Category: NA	10,500.00, Rat - Category: NA	No data available
Sodium hydroxide (1310-73-2)	6,600.00, Mouse - Category: NA	1,350.00, Rabbit - Category: 4	600.00, Mouse - Category: NA	No data available	No data available

Safety Data Sheet

11. Toxicological information Acute toxicity (cont.)

Item	Hazard
Acute Toxicity (mouth)	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Acute Toxicity (skin)	Harmful in contact with skin.
Acute Toxicity (inhalation)	Vapors and spray mist may irritate throat and respiratory system and cause coughing.
Skin corrosion/irritation	Causes severe skin burns and eye damage.
Eye damage/irritation	Causes serious eye damage.
Sensitization (respiratory)	No data available.
Sensitization (skin)	No data available.
Germ toxicity	No data available.
Carcinogenicity	Not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Reproductive Toxicity	No data available.
Specific target organ systemic toxicity (single exposure)	May cause respiratory irritation.
Specific target organ systemic Toxicity (repeated exposure)	Not Applicable.
Aspiration hazard	Not classified; however droplets of product may be aspirated into lungs, through ingestion or vomiting and may cause serious chemical pneumonia.

12. Ecological information

Toxicity: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Sodium hypochlorite (7681-52-9)	0.08, Pimephales promelas	0.032, Daphnia magna	0.40 (72 hr), Dunaliella primolecta
Sodium chloride (7647-14-5)	1,100.00, Freshwater Fish	3,310.00, Daphnia magna	Not Available
Sodium hydroxide (1310-73-2)	196.00, Poecilia reticulata	40.38, Ceriodaphnia dubia	Not Available

Persistence and degradability:	There is no data available on the preparation itself.
Bioaccumulative potential:	Not Measured
Mobility in soil:	No data available.
Results of PBT and vPvB assessment:	This product contains no PBT/vPvB chemicals.
Other adverse effects:	No other effects are expected.

13. Disposal considerations

Waste treatment methods:	Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. Using information provided in this data sheet, advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.
Waste from material:	The waste determination should be made in discussion between the user and the waste disposal company.
Container Management:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Safety Data Sheet

14. Transport information

UN number:	UN1791
UN proper shipping name:	Hypochlorite solutions
Transport hazard class(es)	
DOT (Domestic Surface Transportation)	
DOT Proper Shipping Name:	Hypochlorite solutions
DOT Hazard Class:	8
DOT Label:	8
UN / NA Number:	UN1791
DOT Packing Group:	III
CERCLA/DOT RQ:	100 lbs.
Environmental hazards:	IMDG Marine Pollutant: Yes (Sodium hypochlorite)
Special precautions for user:	Not Applicable

15. Regulatory information

Regulatory Overview:	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory.	
WHMIS Classification	D2B E	
US EPA Tier II Hazards:	Fire:	No
	Sudden Release of Pressure:	No
	Reactive:	No
	Immediate (Acute):	Yes
	Delayed (Chronic):	No
SARA 302 Extremely Hazardous Substance:		No
SARA 311/312 Chemicals and RQs (lbs) (>0.1%) :		100
SARA 313 (TRI):		No
CAA Section 112 Hazardous Air Pollutant:		No
CAA Section 112R Risk Management Plan:		No
State Regulations	N.J. RTK Substances (>1%) :	Listed
	Penn RTK Substances (>1%) :	Listed
	California Prop 65:	Not Listed

16. Other information:

EPA Registration Number: 813-15

NSF Maximum Use Level (STD 60): Check BOL for facility Data. (37 to 84 mg/L)

Revision Information: 5/4/2017 – Section 3: Revised EPA registration.

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

THE USER IS CAUTIONED TO PERFORM HIS OWN HAZARD EVALUATION AND TO RELY ON HIS OWN DETERMINATIONS.



SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat CL4635
Product Use:	Scale and Corrosion Inhibitor
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	February 7, 2019
Revision Date:	February 7, 2019
Revision Number:	19020701AN

Section 2. Hazard(s) Identification

Signal Word:	None
GHS Classification(s):	Non-Hazardous Substance
Hazard Statement(s):	Non-Hazardous Substance
Precautionary Statement(s):	No significant health risks are expected from exposures under normal conditions of use.
Prevention:	None.
Response:	None.
Storage:	None.
Disposal:	None.
System of Classification Used:	Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).
Hazards Not Otherwise Classified:	None.



Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt. %
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Call a POISON CENTER or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Call a poison center or doctor/physician if you feel unwell.

Ingestion: Rinse mouth. Call a poison center or doctor/physician if you feel unwell.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product: Not flammable.

Suitable Extinguishing Media: Use extinguishing media suitable to surrounding fire.

Specific Hazards Arising from the Chemical: None known.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and/or absorb spill with inert material then place in suitable container.
Other Statements:	None.

Section 7. Handling and Storage

Handling:	Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.
Storage:	Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E

Engineering Controls:	Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.
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Personal Protection

Eyes:	Safety glasses are recommended if risk of eye contact.
Skin:	Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
Respiratory:	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Light Straw, Clear
Specific Gravity:	1.182 @ 20°C
pH:	4.1 @ 20°C, 100.0%
Freezing Point:	28°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Soluble
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	N/A
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	9.86 LB/GA
Vapor Pressure:	N/D
% VOC:	0
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability:	Stable at normal temperatures and pressures.
Incompatibility with Various Substances:	Strong oxidizers, Strong bases.
Hazardous Decomposition Products:	Oxides of carbon, Acetic acid.
Possibility of Hazardous Reactions:	None known.
Reactivity:	N/D
Conditions To Avoid:	N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
N/D	N/D	N/D	N/D	N/D

Carcinogenicity Category

Component	Source	Code	Brief Description
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation:	N/D
Eye Contact:	N/D
Skin Contact:	N/D
Ingestion:	N/D

Skin Corrosion/Irritation: N/D



Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Ceriodaphnia dubia	48h	LC50	1005 mg/l
Fathead Minnow	96h	LC50	6325 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.



Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA):
Canada (DSL/NDL):

All ingredients listed.
All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	No
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A	N/A

Comments: None.



State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Components not listed are either non hazardous or in concentration of less than 1%	None.

Compliance Information

NSF: Certified to NSF/ANSI Standard 60
Maximum use rate for potable water – 10 mg/L
This product ships as NSF from:
Ashland, VA
Eldridge, IA
Nederland, TX

Food Regulations: N/A

KOSHER: This product is certified by the Orthodox Union as kosher pareve.
Only when prepared by the following ChemTreat facilities:
Ashland, VA; Eldridge, IA; Nederland, TX.

Halal: This product has not been evaluated for Halal approval.

FIFRA: N/A

Other: None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	0
Flammability:	0
Physical Hazard:	0
PPE:	X

**Notes:**

The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.

The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by:

Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date:

February 7, 2019

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat BL1799
Product Use:	Boiler Boilout Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	February 7, 2019
Revision Date:	February 7, 2019
Revision Number:	19020701AN

Section 2. Hazard(s) Identification



Signal Word: **DANGER**

GHS Classification(s):
Eye damage/irritation – Category 1
Skin corrosion/irritation – Category 1b
Acute Toxicity Inhalation – Category 4
Acute Toxicity Oral – Category 4
Acute Toxicity Dermal – Category 4

Hazard Statement(s):
H318 Causes serious eye damage.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.

Precautionary Statement(s):

Prevention:	P260 Do not breathe dust/fume/gas/mist/vapors/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink, or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
-------------	--

**Response:**

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P301 + 330 + 331 IF SWALLOWED: Rinse mouth.
Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair):
Remove/take off immediately all contaminated clothing.
Rinse skin with water/shower
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

System of Classification Used:

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified:

None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt. %
Sodium phosphate, tribasic	7601-54-9	1 – 5
Sodium hydroxide	1310-73-2	1 – 5

Comments

If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation:

Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Eyes:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.



Skin:	Immediately remove/take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. Immediately call a poison center or doctor/physician.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.
Most Important Symptoms:	N/D
Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:	N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Not flammable.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Use water spray to keep containers cool.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

Section 7. Handling and Storage

Handling:

Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage:

Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Do not freeze. Store above Freeze Point. If freezes, then mechanical mixing is required.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Sodium phosphate, tribasic	N/E	N/E
Sodium hydroxide	ACGIH TLV	2 mg/m ³ Ceiling
	OSHA PEL	2 mg/m ³ TWA

Engineering Controls:

Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection**Eyes:**

Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin:

Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory:

If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	1.050 @ 20°C
pH:	12.7 @ 20°C, 100.0%
Freezing Point:	46°F
Flash Point:	N/A
Odor:	Odorless
Melting Point:	N/D
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Complete
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	8.76 LB/GA
Vapor Pressure:	N/D
% VOC:	N/D
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability:	Stable at normal temperatures and pressures.
Incompatibility with Various Substances:	Strong oxidizers, Acids.
Hazardous Decomposition Products:	Oxides of phosphorus, Oxides of carbon.
Possibility of Hazardous Reactions:	None known.
Reactivity:	N/D
Conditions To Avoid:	N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Sodium phosphate, tribasic	Oral	LD50	7400 MG/KG	Rat
Sodium hydroxide	Oral	LD50	300 MG/KG	Rat
	Dermal	LD50	1350 MG/KG	Rabbit

Carcinogenicity Category

Component	Source	Code	Brief Description
Sodium phosphate, tribasic	N/E	N/E	N/E
Sodium hydroxide	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D



Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
N/D	N/D	N/D	N/D

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: Not tested.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
EPA corrosivity characteristic hazardous waste D002 when disposed of in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	UN1824	SODIUM HYDROXIDE SOLUTION	N/A	8	PGII
TDG	UN1824	SODIUM HYDROXIDE SOLUTION	N/A	8	PGII

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA):
Canada (DSL/NDSL):

All ingredients listed.
All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	No
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Sodium phosphate, tribasic	N/A	N/A	5000
Sodium hydroxide	N/A	N/A	1000

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Sodium phosphate, tribasic	MN, NY, PA
Sodium hydroxide	MA, MN, NY, PA, WA



Compliance Information

NSF:	N/A
Food Regulations:	N/A
KOSHER:	This product has not been evaluated for Kosher approval.
Halal:	This product has not been evaluated for Halal approval.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	3
Flammability:	0
Physical Hazard:	1
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value



Abbreviation	Definition
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: February 7, 2019

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat BL1534
Product Use:	Boiler Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	February 7, 2019
Revision Date:	February 7, 2019
Revision Number:	19020701AN

Section 2. Hazard(s) Identification



Signal Word: **DANGER**

GHS Classification(s): Skin corrosion/irritation – Category 1b
Eye damage/irritation – Category 1
Acute Toxicity Dermal – Category 4
Acute Toxicity Inhalation – Category 4
Acute Toxicity Oral – Category 4

Hazard Statement(s): H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention: P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P301 + 330 + 331 IF SWALLOWED: Rinse mouth.
Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair):
Remove/take off immediately all contaminated clothing.
Rinse skin with water/shower
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

System of Classification Used:

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified:

None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt. %
Ammonium hydroxide	1336-21-6	10 – 30

Comments

If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

Eyes:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.



Skin:	Immediately remove/take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. Immediately call a poison center or doctor/physician.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.
Most Important Symptoms:	N/D
Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:	N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Not flammable.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Thermal decomposition releases ammonia and oxides of nitrogen.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802. Reportable Quantity of the product is 902 Gal.

Section 7. Handling and Storage

Handling:

Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage:

Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Do not store or handle in aluminum, zinc, copper, or their alloys. Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Ammonium hydroxide	N/E	N/E

Engineering Controls:

Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection**Eyes:**

Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin:

Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory:

If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	0.950 @ 20°C
pH:	N/A
Freezing Point:	N/D
Flash Point:	N/D
Odor:	Strong
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	N/D
Solubility in Water:	Soluble
Evaporation Rate:	N/A
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	7.92 LB/GA
Vapor Pressure:	N/D
% VOC:	N/D
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability:	Stable at normal temperatures and pressures.
Incompatibility with Various Substances:	Strong oxidizers, Acids, Zinc, Copper/copper alloys.
Hazardous Decomposition Products:	Ammonia, Oxides of nitrogen.
Possibility of Hazardous Reactions:	None known.
Reactivity:	N/D
Conditions To Avoid:	N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Ammonium hydroxide	Oral	LD50	350 MG/KG	Rat

Carcinogenicity Category

Component	Source	Code	Brief Description
Ammonium hydroxide	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Ceriodaphnia dubia	48h	LC50	131 mg/l
Fathead Minnow	96h	LC50	8.2 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: As ammonia

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	UN2672	AMMONIA SOLUTIONS (14%)	N/A	8	PGIII
Over 902 GA	RQ UN2672	AMMONIA SOLUTIONS (14%)	N/A	8	PGIII

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA):
Canada (DSL/NDSL):

All ingredients listed.
All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	No
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Ammonium hydroxide	Yes	N/A	1000

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Ammonium hydroxide	MA, NY, PA

Compliance Information

NSF:	N/A
Food Regulations:	N/A
KOSHER:	This product has not been evaluated for Kosher approval.
Halal:	This product has not been evaluated for Halal approval.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	3
Flammability:	1
Physical Hazard:	0
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value



Abbreviation	Definition
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: February 7, 2019

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

TCF-TECH-4 Laboratory Information

LCRA's contract laboratory is Lower Colorado River Authority - Environmental Laboratory Services (ELS), which is a NELAP accredited laboratory (Certificate Number: T104704218-21-23) for non-potable water. ELS uses subcontractors for certain analytes.

Subcontractors:

- A & B Environmental Services, Inc.- T104704213-22-32
- Aqua-Tech- T104704371-23-27
- DHL Analytical, Inc. - T10470411-23-29
- SPL, Inc. – T104704201

See below for the pollutants analyzed by ELS and subcontractor. The sample type is also listed.

TCF Pollutant Analysis

Outfall 001

Table 1

Pollutant	Laboratory	Sample Type
BOD (5-day)	AQUA-TECH	Composite
CBOD (5-day)	AQUA-TECH	Composite
Chemical oxygen demand	ELS	Composite
Total organic carbon	ELS	Composite
Dissolved oxygen	ELS	Grab
Ammonia nitrogen	ELS	Composite
Total suspended solids	ELS	Composite
Nitrate nitrogen	ELS	Composite
Total organic nitrogen	ELS	Composite
Total phosphorus	ELS	Composite
Oil and grease	ELS	Grab
Total residual chlorine	ELS	Grab
Total dissolved solids	ELS	Composite
Sulfate	ELS	Composite
Chloride	ELS	Composite
Fluoride	ELS	Composite
Total alkalinity (mg/L as CaCO ₃)	ELS	Composite
Temperature (°F)	ELS	Grab
pH (standard units)	ELS	Grab

Outfall 001**Table 2**

Pollutant	Laboratory	Sample Type
Aluminum, total	ELS	Composite
Antimony, total	ELS	Composite
Arsenic, total	ELS	Composite
Barium, total	ELS	Composite
Beryllium, total	ELS	Composite
Cadmium, total	ELS	Composite
Chromium, total	AQUA-TECH	Composite
Chromium, hexavalent	AQUA-TECH	Composite
Chromium, trivalent	AQUA-TECH	Composite
Copper, total	ELS	Composite
Cyanide, available	A&B Laboratory	Composite
Lead, total	ELS	Composite
Mercury, total	A&B Laboratory	Composite
Nickel, total	ELS	Composite
Selenium, total	ELS	Composite
Silver, total	ELS	Composite
Thallium, total	ELS	Composite
Zinc, total	ELS	Composite

Outfall 001**Table 3**

Pollutant	Laboratory	Sample Type
Acrylonitrile	DHL Analytical	Composite
Anthracene	SPL Labs	Composite
Benzene	DHL Analytical	Composite
Benzidine	SPL Labs	Composite
Benzo(a)anthracene	SPL Labs	Composite
Benzo(a)pyrene	SPL Labs	Composite
Bis(2-chloroethyl)ether	SPL Labs	Composite
Bis(2-ethylhexyl)phthalate	SPL Labs	Composite
Bromodichloromethane [Dichlorobromomethane]	DHL Analytical	Composite
Bromoform	DHL Analytical	Composite
Carbon tetrachloride	DHL Analytical	Composite
Chlorobenzene	DHL Analytical	Composite
Chlorodibromomethane [Dibromochloromethane]	DHL Analytical	Composite
Chloroform	DHL Analytical	Composite
Chrysene	SPL Labs	Composite
m-Cresol [3-Methylphenol]	SPL Labs	Composite
o-Cresol [2-Methylphenol]	SPL Labs	Composite
p-Cresol [4-Methylphenol]	SPL Labs	Composite
1,2-Dibromoethane	DHL Analytical	Composite
m-Dichlorobenzene [1,3-Dichlorobenzene]	SPL Labs	Composite
o-Dichlorobenzene [1,2-Dichlorobenzene]	SPL Labs	Composite

Pollutant	Laboratory	Sample Type
p-Dichlorobenzene [1,4-Dichlorobenzene]	SPL Labs	Composite
3,3'-Dichlorobenzidine	SPL Labs	Composite
1,2-Dichloroethane	DHL Analytical	Composite
1,1-Dichloroethene [1,1-Dichloroethylene]	DHL Analytical	Composite
Dichloromethane [Methylene chloride]	DHL Analytical	Composite
1,2-Dichloropropane	DHL Analytical	Composite
1,3-Dichloropropene [1,3-Dichloropropylene]	DHL Analytical	Composite
2,4-Dimethylphenol	SPL Labs	Composite
Di-n-Butyl phthalate	SPL Labs	Composite
Ethylbenzene	DHL Analytical	Composite
Fluoride	ELS	Composite
Hexachlorobenzene	SPL Labs	Composite
Hexachlorobutadiene	SPL Labs	Composite
Hexachlorocyclopentadiene	SPL Labs	Composite
Hexachloroethane	SPL Labs	Composite
Methyl ethyl ketone	DHL Analytical	Composite
Nitrobenzene	SPL Labs	Composite
N-Nitrosodiethylamine	SPL Labs	Composite
N-Nitroso-di-n-butylamine	SPL Labs	Composite
Nonylphenol	SPL Labs	Composite
Pentachlorobenzene	SPL Labs	Composite
Pentachlorophenol	SPL Labs	Composite
Phenanthrene	SPL Labs	Composite
Polychlorinated biphenyls (PCBs) (**)	SPL Labs	Composite
Pyridine	SPL Labs	Composite
1,2,4,5-Tetrachlorobenzene	SPL Labs	Composite
1,1,2,2-Tetrachloroethane	DHL Analytical	Composite
Tetrachloroethene [Tetrachloroethylene]	DHL Analytical	Composite
Toluene	DHL Analytical	Composite
1,1,1-Trichloroethane	DHL Analytical	Composite
1,1,2-Trichloroethane	DHL Analytical	Composite
Trichloroethene [Trichloroethylene]	DHL Analytical	Composite
2,4,5-Trichlorophenol	SPL Labs	Composite
TTHM (Total trihalomethanes)	DHL Analytical	Composite
Vinyl chloride	DHL Analytical	Composite

(*) 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 “<”.

Outfall 001

Table 6

Pollutants	Laboratory	Sample Type
Bromide	ELS	Composite
Color (PCU)	AQUA-TECH	Composite
Nitrate-Nitrite (as N)	ELS	Composite
Sulfide (as S)	A&B Laboratory	Composite

Pollutants	Laboratory	Sample Type
Sulfite (as SO ₃)	--	--
Surfactants	SPL Labs	Composite
Boron, total	ELS	Composite
Cobalt, total	ELS	Composite
Iron, total	ELS	Composite
Magnesium, total	ELS	Composite
Manganese, total	ELS	Composite
Molybdenum, total	ELS	Composite
Tin, total	ELS	Composite
Titanium, total	ELS	Composite

* Indicate units if different from µg/L.

Outfall 001

Table 8

Pollutant	Laboratory	Sample Type
Acrolein	DHL Analytical	Composite
Acrylonitrile	DHL Analytical	Composite
Benzene	DHL Analytical	Composite
Bromoform	DHL Analytical	Composite
Carbon tetrachloride	DHL Analytical	Composite
Chlorobenzene	DHL Analytical	Composite
Chlorodibromomethane [Dibromochloromethane]	DHL Analytical	Composite
Chloroethane	DHL Analytical	Composite
2-Chloroethylvinyl ether	DHL Analytical	Composite
Chloroform	DHL Analytical	Composite
Dichlorobromomethane [Bromodichloromethane]	DHL Analytical	Composite
1,1-Dichloroethane	DHL Analytical	Composite
1,2-Dichloroethane	DHL Analytical	Composite
1,1-Dichloroethylene [1,1-Dichloroethene]	DHL Analytical	Composite
1,2-Dichloropropane	DHL Analytical	Composite
1,3-Dichloropropylene [1,3-Dichloropropene]	DHL Analytical	Composite
Ethylbenzene	DHL Analytical	Composite
Methyl bromide [Bromomethane]	DHL Analytical	Composite
Methyl chloride [Chloromethane]	DHL Analytical	Composite
Methylene chloride [Dichloromethane]	DHL Analytical	Composite
1,1,2,2-Tetrachloroethane	DHL Analytical	Composite
Tetrachloroethylene [Tetrachloroethene]	DHL Analytical	Composite
Toluene	DHL Analytical	Composite
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]	DHL Analytical	Composite
1,1,1-Trichloroethane	DHL Analytical	Composite
1,1,2-Trichloroethane	DHL Analytical	Composite
Trichloroethylene [Trichloroethene]	DHL Analytical	Composite
Vinyl chloride	DHL Analytical	Composite


* Indicate units if different from µg/L.


Outfall 001**Table 9**


Pollutant	Laboratory	Sample Type
2-Chlorophenol	SPL Labs	Composite
2,4-Dichlorophenol	SPL Labs	Composite
2,4-Dimethylphenol	SPL Labs	Composite
4,6-Dinitro-o-cresol	SPL Labs	Composite
2,4-Dinitrophenol	SPL Labs	Composite
2-Nitrophenol	SPL Labs	Composite
4-Nitrophenol	SPL Labs	Composite
p-Chloro-m-cresol	SPL Labs	Composite
Pentachlorophenol	SPL Labs	Composite
Phenol	SPL Labs	Composite
2,4,6-Trichlorophenol	SPL Labs	Composite


* Indicate units if different from µg/L.

LCRA Thomas C Ferguson Plant TCF-TECH-5 Surface Water Intake Map


 Public Supply Surface Water Intake

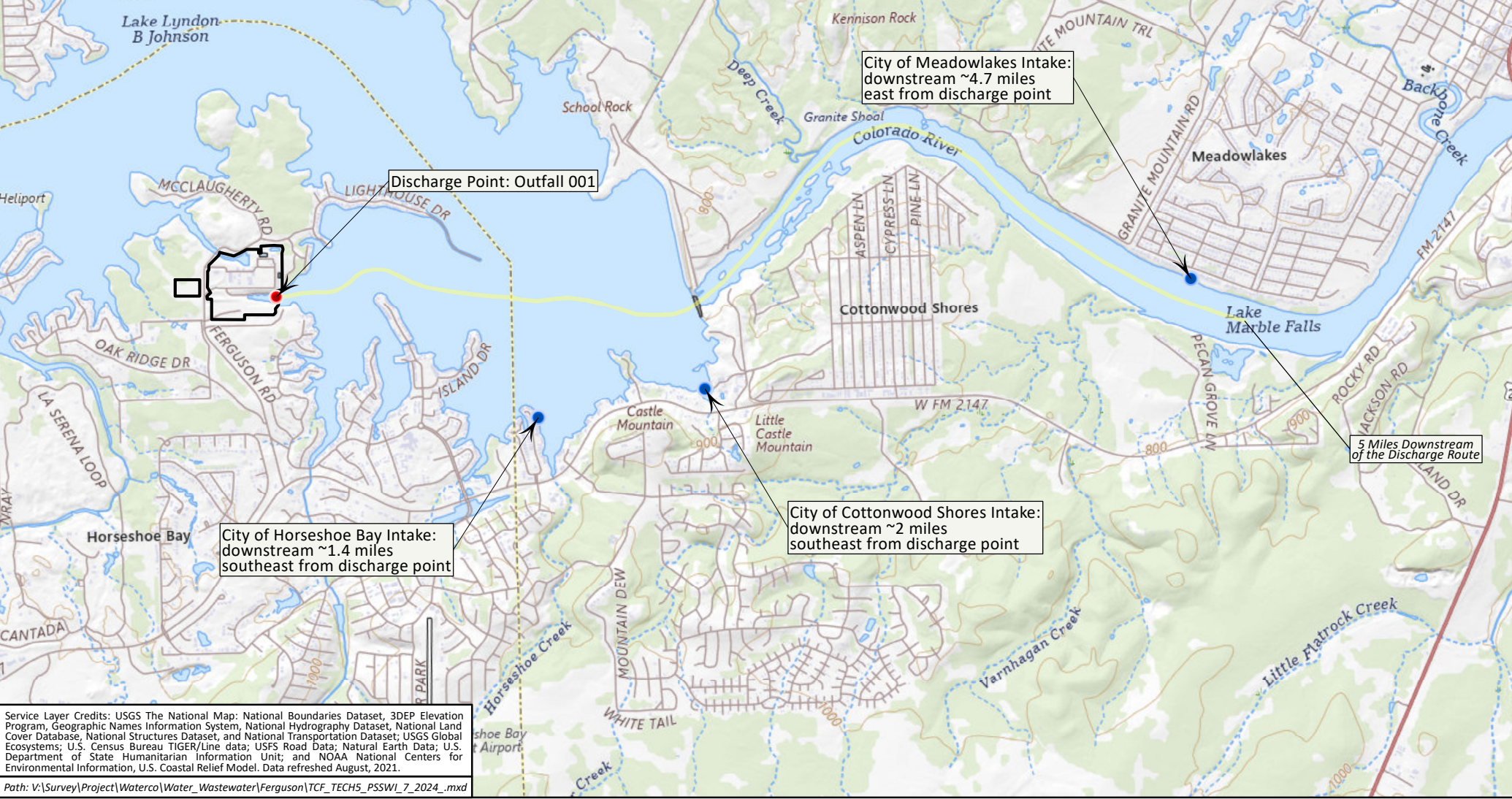
 Discharge Point: Outfall 001

 LCRA TCF Facility

 Discharge Route (5 Stream Miles)

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet





Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.

Path: V:\Survey\Project\Waterco\Water_Wastewater\Ferguson\TCF TECH5 PSSWI 7 2024_.mxd

ATTACHMENT - TCF-TECH-6

SECTION 1: COOLING WATER SYSTEM DATA

Section 1(b)(1): Narrative Description

The Lower Colorado River Authority (LCRA) Thomas C. Ferguson (Ferguson) Power Plant is a combined-cycle natural gas plant located in Horseshoe Bay, Texas. The plant is situated on a peninsula on the south shore of Lake Lyndon B. Johnson. See **Figure 1** for a photo of the plant. Lake Lyndon B. Johnson, commonly known as Lake LBJ, is a 6,502-acre impoundment of the Colorado River located in Llano and Burnet Counties. See **Figure 2** for a general location map of the plant and Lake LBJ. The lake was constructed in 1951 by the LCRA for industrial (power plant cooling), hydro-electric power generation, and recreation (TCEQ, 1983). The Ferguson Power Plant first began operations in 1974 as a conventional natural gas-fired power boiler. It was replaced in 2014 with a more cost-effective and reliable combined-cycle natural gas-fired power plant (LCRA, 2018). The cooling water system is used year-round to provide cooling, as needed, to the plant.

The current Ferguson Power Plant has two combustion turbines and a steam turbine, which use water from Lake LBJ for non-contact circulating and cooling water, fire protection water, and other power plant processes. Withdrawal of water for plant operations is on the west (upstream) side of the peninsula via an intake canal, and discharge of cooling water is on the east (downstream) side of the peninsula. The intake canal was constructed to pass water from the lake to the cooling water intake structure (CWIS), which feeds water to the plant. See **Figure 3** for an aerial map of the plant including its intake canal and discharge point. The main components of the CWIS include the intake canal; the intake structure that holds the circulating, cooling, and fire protection pumps; four bar racks with a bar screen rake; and four traveling screens with dedicated screen wash pumps. The rakes and traveling screens remove debris from the lake water prior to use in the plant.

The original plant's CWIS was redesigned in 2014 as part of the current plant's redesign. The current intake structure is partitioned into three pump bays. The two outer bays hold the circulating and cooling water (CW) pumps. The fire protection pump bay is situated between the two CW bays but is blocked from the intake canal by a wall. Each CW bay receives water directly from the lake through two 15-foot wide inlet channels. The fire protection pump bay receives water from each CW bay after the water passes through motor-operated sluice gates that separates it from the other bays.

After lake water is used by passing it through the plant's main condensers and equipment for cooling, the water is released on the east side of the plant through a disengaging box. The discharged water passes through a short discharge channel thence to a cooling bay. The northern boundary of the cooling bay is formed by a man-made rock and gravel berm, the purpose of which is to confine the thermal discharge to the cooling bay and to prevent the recirculation of warm water back to the cooling water intake area. The definition and extent of this cooling bay was added to the plant's TCEQ TPDES Industrial Wastewater Discharge Permit (WQ0001369000) issued on July 13, 2013. The permit designates this area as an "industrial cooling impoundment" encompassing 284 acres from the discharge point to the man-made berm, and as such, numeric temperature criteria do not apply. See **Figure 4** for illustration of the industrial cooling water impoundment.

Section 1(b)(2): Maps

Maps are included as **Figures 2, 3, and 4**. The coordinates for the intake structure are on **Figure 3**. The intake structure is located at Latitude: 30° 33' 31.38" N and Longitude: 98° 22' 18.88" W. The elevation of the intake pipes (at suction bell opening) for the circulating water pumps is at 803 feet mean sea level (ft-msl). The normal operational level of the lake surface is 825 ft-msl. The pumps are designed to operate at a minimum lake level of 819 ft-msl. The maximum lake level for design is 839.00 ft-msl.

Section 1(b)(3): Water Reuse

Not applicable.

Section 1(b)(4): Calculations and Data to Support AIF and DIF

The method for calculating intake flow is based on pump curves and hours in operation. Pump curves were provided by the original equipment manufacturer and verified by Fluor and LCRA engineering during commissioning of the plant. Plant operating staff provided the flow data for the actual intake flow (AIF) and design intake flow (DIF) using an electronic data management system that captures and records the operating data. Pump curves and test data for the circulating water and auxiliary cooling water pumps are **Figures 5a through 5d**.

Section 1(b)(5): AIF for One Year

See data in **Figure 6** for the period July 2023 through June 2024.

Section 1(b)(6): Impingement and Entrainment Technologies and Operation Measures

The Ferguson Power Plant is designed to meet 0.5 feet per second (ft/s) through screen design velocity as its method of compliance with the Impingement Mortality Standard as described in 40 CFR § 125.94(c)(2). The plant's CWIS was redesigned in 2014 to have a through-screen design velocity of less than 0.5 ft/s. This velocity is a threshold identified by EPA as an impingement technology.

In addition, Ferguson Power Plant uses Lake LBJ as a Closed Cycle Recirculating System (CCRS). TCEQ confirmed, by letter dated February 17, 2017, that Lake LBJ is operated in a manner consistent with a CCRS, as defined in 40 CFR § 125.92(c). See **Figure 7** for a copy of the letter.

Entrainment was reduced in 2014 when the plant was modified from a conventional boiler to a combined cycle power plant. The combined cycle plant uses about 35% less fuel per MWH as compared with the original plant (LCRA, 2018).

SECTION 2: COOLING WATER INTAKE STRUCTURE(S)

Section 2(b)(1): Narrative Description of Cooling Water Intake Structure

The Ferguson Power Plant uses a single CWIS to withdraw water from Lake LBJ for its main circulating water (CW) system, the auxiliary cooling water system, and the fire protection system. The CWIS consists of an intake canal, a water intake structure, a bar rack, and four traveling screens. The intake structure is partitioned into three pump bays. The outer two bays are CW pump bays and receive water from two 15-foot wide inlet channels. The center bay is the fire pump bay, which is fed water through sluice gates from either (or both) of the adjacent CW pump bays. The bar rack and traveling screens are fitted in front of the CW pump bays to remove debris from the lake water. See **Figures 8 and 9** for features of the CWIS.

A 50-percent capacity, motor-driven CW pump is installed in each of the CW pump bays. Each pump has a design capacity of 92,410 gallons per minute (gpm) (266 million gallon per day [mgd]). During normal operations both pumps operate to supply once-through CW to the condensers; however, the pumps are sized to allow operation of only one CW pump when necessary. A 100-percent capacity, motor-driven vertical auxiliary cooling water pump is installed in each of the CW bays. Each auxiliary cooling water pump has a design capacity of 7,650 gpm (22 mgd). Normal operation uses one auxiliary cooling water pump to supply once-through auxiliary cooling water to plant equipment, and the second pump is an installed spare. The design capacity at normal operation with the two CW pumps at 50% and one auxiliary pump at 100% is 288.2 mgd. The main CW pumps located in each of the two bays each contain a vortex suppression basket that is anchored to the bay floor. The bay floor elevation is 800 ft-msl, and the CW pipe opening (at suction bell opening) is at elevation 803 ft-msl.

The intake canal is approximately 2000 feet long and was carved from solid granite (common to this region), functioning similar to a cement-lined ditch. It extends from the intake pumps into Lake LBJ and is an approximate rectangular cross-section. Water depth throughout the intake canal is about 25 feet at normal pool elevation except for an area near the pump intakes, which is approximately 30 feet, and an area west of the existing bridge located approximately 950 feet from the intake pumps, which is approximately 19 feet.

The units are permitted to operate on a continuous basis. However, the units are dispatched based on electrical demand on the state-wide grid.

Section 2(b)(2): Engineering Calculations

Calculations are based on pump curves. See **Figures 5a through 5d** for the pump curves of the pumps listed above.

See **Figures 10a through 10b** for through-screen velocities for the traveling band screen and the bar screen. The charts show the through-screen velocities resulting from a variation of conditions, including changes in lake level (normal operating elevation is approximately 825 ft-msl).

SECTION 3: SOURCE WATER PHYSICAL DATA

Section 3(b)(1): Narrative Description of the Source Water for CWIS

Lake LBJ is an impoundment of the Colorado River located five miles west of Marble Falls, Texas, in Llano and Burnet counties. In 1951, Lake LBJ was created for the purposes of hydro-electric and steam-electric power production, and recreation (TCEQ, 1983). The main body of the lake stretches approximately 21 miles from its northernmost point at Inks Dam to its southernmost point at Wirtz Dam (LCRA, 2011).

Lake LBJ is a “pass-through” lake (TWDB, 2007). Releases from upstream are used to maintain Lake LBJ at a specified range of operating elevations and to meet downstream water demands. During flood conditions, additional water may be temporarily stored in Lake LBJ (LCRA, 2015).

Lake LBJ has a full pool elevation of 825.68 ft-msl with a normal operating range of 825.08 to 825.68 ft-msl. At normal operating level, the lake has a capacity of approximately 133,000 acre-feet and covers an area of 6,273 acres (TWDB, 2007). The greatest depth of the lake when full is more than 72 feet near Wirtz Dam (LCRA, 2011). **Figure 11** shows a map of depths for the lake (TPWD, 2007).

LCRA has a water quality program that tracks data for Lake LBJ. This data is provided on-line at <http://waterquality.lcra.org/>. In the time period between 2010 to 2023, average temperature for Lake LBJ was 22.2 degrees Celsius, minimum temperature was 7.5 degrees Celsius, and maximum temperature was 32.1 degrees Celsius. Specific conductance of the water in this time period averaged 437.5 umho/cm (@ 25C), had a minimum of 213 umho/cm, and had a maximum value of 542 umho/cm (LCRA, 2019).

Section 3(b)(2): Narrative of Source Water’s Hydrological and Geomorphological Features

Lake LBJ is a run-of-the-river impoundment that lies on the Colorado River between Inks Dam and Wirtz Dam. The impoundment lies within the Edwards Plateau ecological area in the Texas Hill Country and Colorado River Basin. The majority of Lake LBJ’s watershed is comprised of the Llano River and Sandy River watershed to the west. The lake’s watershed is composed of two geologic regions: the Llano Uplift and the karstified Cretaceous limestone. The majority of land cover is brush and grass land. Average rainfall ranges from 22 inches in the western part of the watershed to 32 inches in the eastern part of the watershed (LCRA, 2011).

The Texas Parks and Wildlife Department (TPWD) manages Lake LBJ to protect and improve the sport fishery. Important sport fishing at this lake includes Largemouth Bass, Channel Catfish, and White Bass. Aquatic vegetation is present throughout the reservoir but is below optimal levels for fish production. Management activities have included restoring shorelines and coves, habitat improvement, and monitoring and stocking sport fish species (TPWD, 2021). Lake contours for Lake LBJ are shown in **Figure 12** (TWDB, 2007).

Section 3(b)(3): Scaled Drawings of Physical Configuration

Maps of Lake LBJ are found in **Figures 2 through 4** and **Figures 11 and 12**.

Section 3(b)(4): Studies related to Intake Area of Influence

In 1977, a study called the “Before and After Studies on the Effects of a Power Plant Installation on Lake Lyndon B. Johnson study” was produced through a joint effort by the University of Texas, TPWD, and LCRA. The consortium took water quality and ecological samples from 1971 through 1976 to determine the effects of Ferguson Power Plant on the ecosystem of Lake LBJ. The study’s final report concluded that “there were no significant effect due to power plant operations on the temperature, water quality, phytoplankton, zooplankton, benthic organisms and fish of Lake LBJ.” The report also presented detailed information about the physics, chemistry, and biology of Lake LBJ.

In 2004, a study was performed to confirm the depth of water in the cooling water intake channel. The intake channel was carved in the early 1970s from an uplift of solid granite and extends roughly 2000 feet from the natural coastline of the lake to the intake structure at the plant. The intake channel was designed with a water depth of 25 feet at the normal Lake LBJ elevation of 825.0 ft-msl. The study concluded that the depths were consistently 25 feet along the canal except for an area near the pump intakes, which was approximately 30 feet in depth, and an area west of the existing bridge at approximately 950 feet upstream from the pump intakes, which was approximately 19 feet in depth.

Literature Cited:

Lower Colorado River Authority, 2019. Water quality data available on-line at <http://waterquality.lcra.org/>. Accessed March 5, 2019.

Lower Colorado River Authority, 2018. Information access on-line at <https://www.lcra.org/energy/electric-power/facilities/Pages/ferguson-power-plant.aspx>. Accessed January, 2018.

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Lower Colorado River Authority, 1977. “Before and After Studies on the Effects of a Power Plant Installation on Lake Lyndon B. Johnson,” prepared by Center for Research in Water Resources, The University of Texas at Austin.

Texas Commission on Environmental Quality, 1983. Certificate of Adjudication: 14-5480 for Lake Lyndon B. Johnson to the Lower Colorado River Authority.

Texas Parks and Wildlife Department. 2021. 2020 Fisheries Management Survey Report, Inland Fisheries Division, report dated July 31, 2021.

Texas Water Development Board, 2007. “Volumetric and Sedimentation Survey of Lake Lyndon B. Johnson, May 2007 Survey” prepared for the Lower Colorado River Authority, report dated April 2009.

SECTION 4: OPERATIONAL STATUS

Section 4(a)(1): Description of Operating Status

The Ferguson Power Plant is a natural gas-fired combined cycle plant with two combustion turbines and a steam turbine. Initial commercial operation of the power plant occurred in March 2014.

The power generating units are permitted to operate on a continuous basis. However, the units are dispatched based on electrical demand on the state-wide grid.

The Net Capacity Factor (ratio of actual plant generation divided by maximum possible net generation for the year) has been the following:

- 2019 = 64.93
- 2020 = 77.06
- 2021 = 72.12
- 2022 = 67.78
- 2023 = 81.37

Section 4(a)(2): Description of Outages

The Ferguson Power Plant has not experienced any extended or unusual outages to date since commencement of commercial operations in March 2014. Lake LBJ experiences periodic lowering of the reservoir that is planned in order to give residents with shoreline property the opportunity to perform maintenance.

Section 4(a)(3): Capacity Utilization Rate

The Ferguson Power Plant does not have any operating units with a capacity utilization rate of less than 8 percent averaged over 24 months. Not applicable.

Section 4(a)(4): Major Upgrades

The Ferguson Power Plant was originally a conventional natural gas-fired power boiler and was decommissioned and replaced with the current combined cycle power plant, which began commercial operations in 2014. As part of the replacement project, the option to burn fuel oil was removed and the CWIS was redesigned to reduce through screen velocity.

ATTACHMENT: TCF-TECH-6 FIGURES

Figure 1: Photo of Ferguson Power Plant

Figure 2: General Location Map of Lake LBJ and Ferguson Plant

Figure 3: Aerial Map of Ferguson Power Plant on Lake LBJ

Figure 4: Illustration of Cooling Water Impoundment Area in Ferguson Permit

Figure 5a-5d: Pump Curve Test Data for CW and Cooling Water Pumps

Figure 6: Annual Intake Flow (AIF) Measured Daily July 2023 -June 2024

Figure 7: TCEQ Letter Regarding Closed-Cycle Recirculating System

Figure 8: Redesigned Ferguson Plant Cooling Water Intake Structure

Figure 9: Features of Redesigned Cooling Water Intake Structure

Figure 10a-10b: Ferguson Through Screen Velocities

Figure 11: Depths Map of Lake LBJ

Figure 12: Contour Map of Lake LBJ



Figure 1: Photo of Ferguson Power Plant

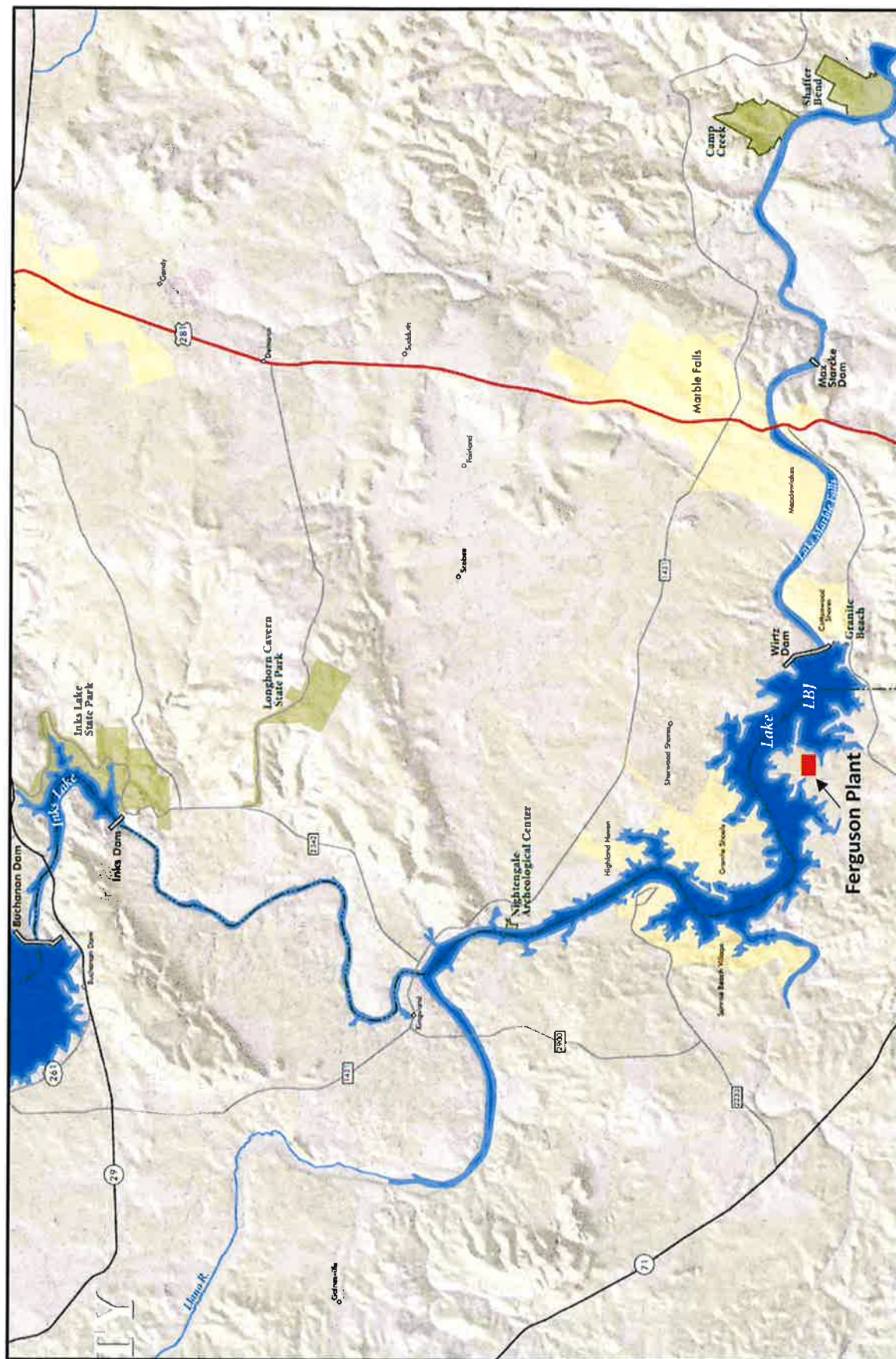


Figure 2: General Location Map of Lake LBJ and Fergusson Plant

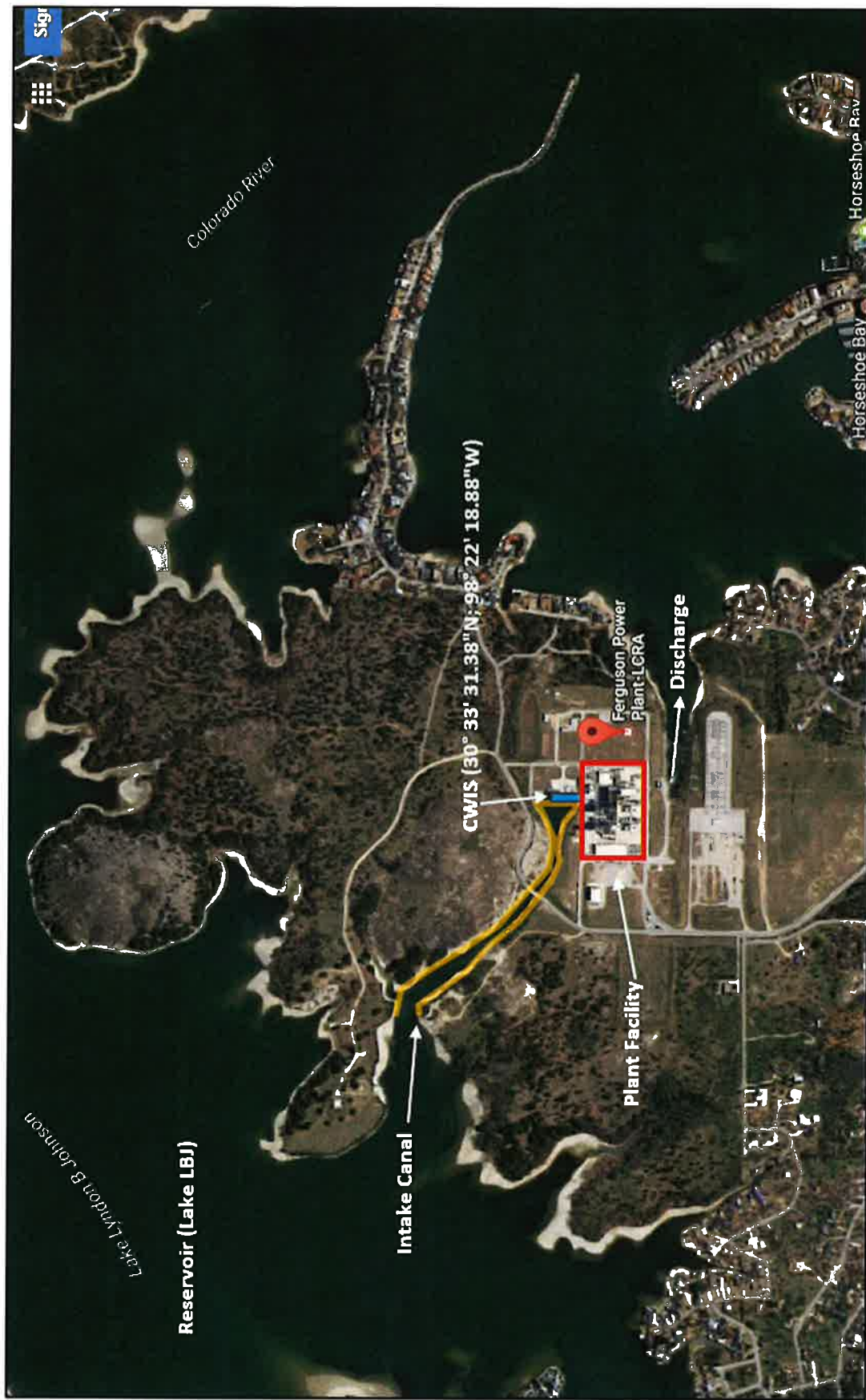


Figure 3: Aerial Map of Fergusson Power Plant on Lake LBJ

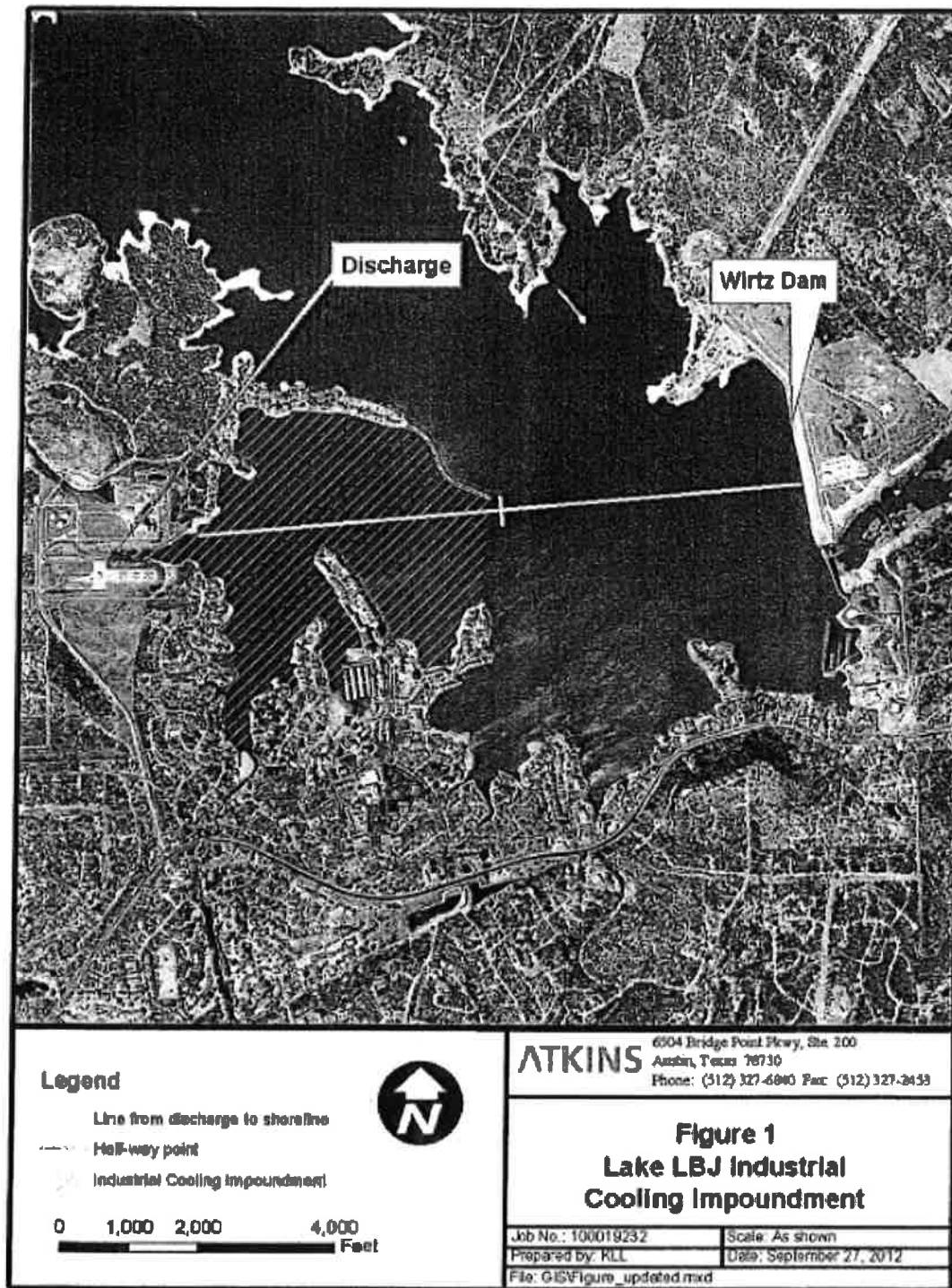


Figure 4: Illustration of Cooling Water Impoundment Area in Ferguson permit (hatched)

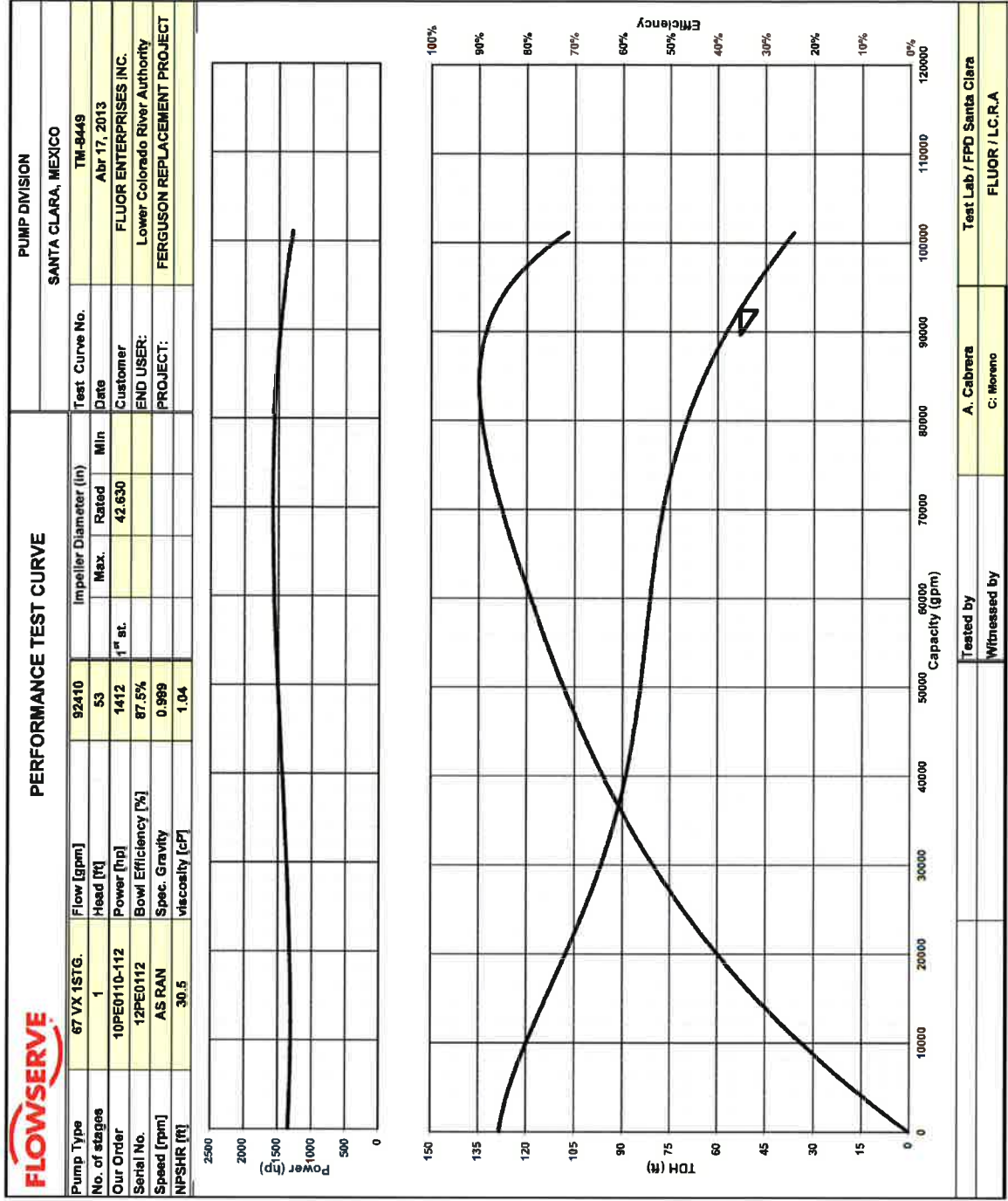


Figure 5b: Pump Curve Test Data for CW Pumps

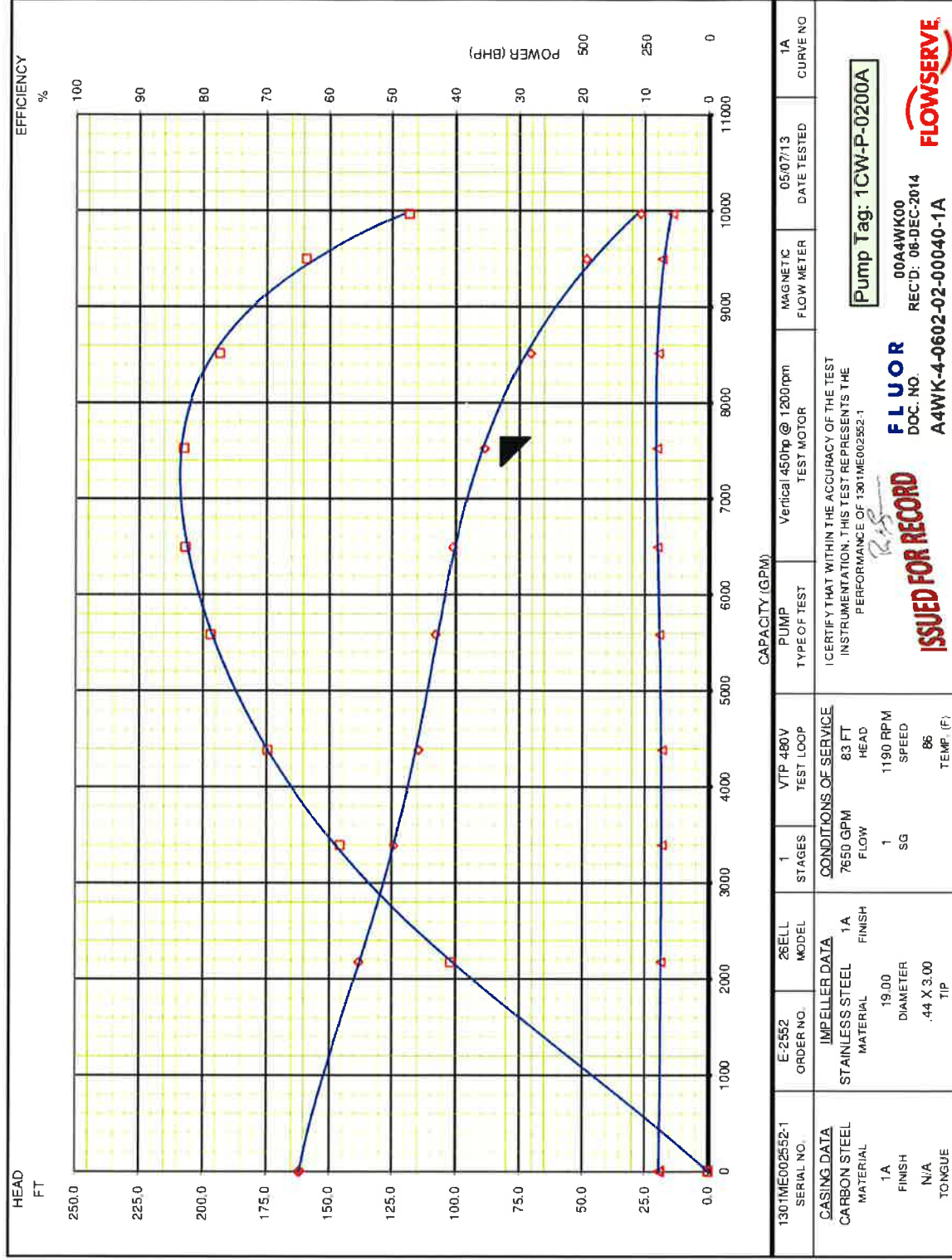
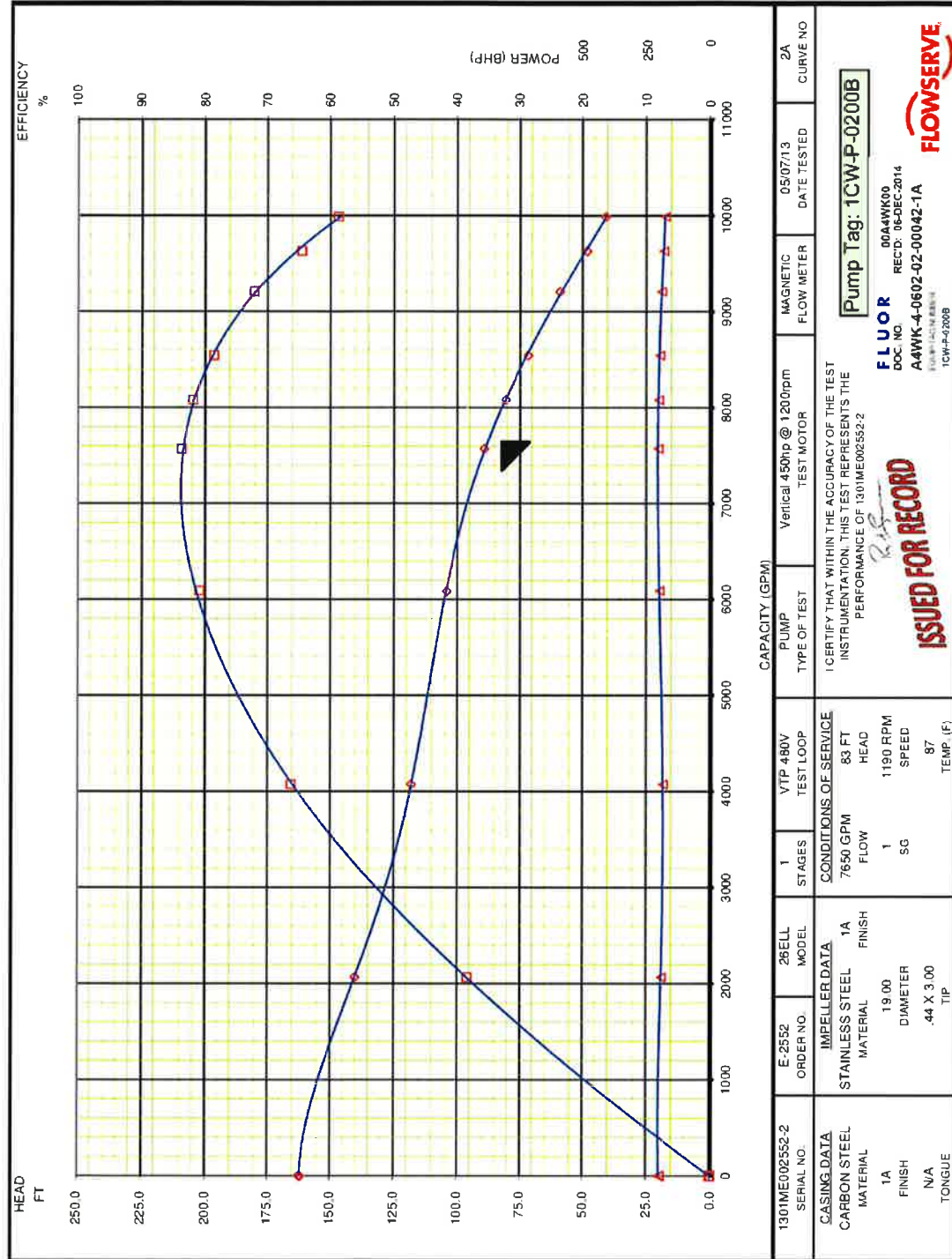


Figure 5c: Pump Curve Auxiliary Cooling Water Pump (0200A)



Actual Intake Flow - Ferguson Power Plant												
Million Gallons Per Day												
Day of Mon	July 2023	Aug 2023	Sept 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	June 2024
1	285	272	270	272	9	289	287	288	288	287	10	289
2	285	271	269	271	10	289	287	288	289	287	11	289
3	284	271	269	271	10	289	287	288	290	287	122	289
4	284	272	270	270	221	289	287	287	290	287	238	289
5	283	272	270	269	292	289	287	287	290	287	292	289
6	280	271	270	269	291	289	287	287	290	287	292	289
7	280	271	279	268	291	289	287	287	290	287	292	289
8	280	270	276	269	291	289	286	288	289	287	292	288
9	280	271	275	268	291	289	286	287	289	287	292	288
10	279	271	273	270	291	289	288	287	277	286	292	288
11	279	271	273	282	291	289	290	287	289	287	291	288
12	282	271	271	281	291	289	289	287	289	287	291	288
13	285	271	273	279	290	289	289	287	289	287	291	288
14	284	272	272	277	290	289	290	287	289	287	290	287
15	283	270	271	275	290	289	289	287	289	287	290	287
16	281	270	270	275	290	289	289	287	289	111	290	287
17	281	270	270	275	290	288	289	287	289	10	289	287
18	281	269	270	276	290	288	289	287	289	10	289	286
19	280	269	269	273	290	288	289	287	288	10	289	286
20	279	269	269	274	290	288	289	286	288	10	289	286
21	255	248	247	250	266	264	265	262	264	9	265	262
22	276	283	282	273	290	288	288	286	288	5	289	285
23	275	282	280	273	290	288	288	284	288	0	289	285
24	276	281	279	272	290	288	288	283	287	0	289	285
25	275	278	277	272	290	287	288	283	288	0	289	285
26	274	276	276	272	289	287	288	282	288	0	289	285
27	273	273	274	272	289	287	288	288	288	0	289	283
28	273	273	273	29	289	287	288	287	288	5	289	282
29	272	271	273	11	289	287	288	289	288	10	289	282
30	272	270	272	11	289	287	288		288	10	289	281
31	272	269		10		287.3	288		288		289	

Figure 6: Annual Intake Flow (AIF) Measured Daily July 2023 -June 2024

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 17, 2017

Mr. Bill Steinhauser
Lower Colorado River Authority
P.O. Box 220
Austin, Texas 78767

Re: 316(b) Requirements for the Ferguson Power Plant
TPDES Permit No. WQ0001369000

Dear Mr. Steinhauser:

We have received your letter dated January 25, 2017, in which the Lower Colorado River Authority (LCRA) requests a waiver of all application requirements under 40 CFR § 122.21(r) related to the Clean Water Act section 316(b) requirements for the Thomas C. Ferguson Power Plant, TPDES Permit No. WQ0001369000.

The LCRA withdraws cooling water from the Lyndon B. Johnson Reservoir (Lake LBJ), a man-made impoundment constructed by the LCRA in 1951 for industrial purposes. Lake LBJ's fishery is stocked and managed by the Texas Parks and Wildlife Department (TPWD), and LCRA has submitted the latest TPWD Inclined Fisheries report for the waterbody. Submittal of this report satisfies application requirements under 40 CFR § 122.21(r)(4); therefore, the application requirement is waived. However, the facility must submit the most current TPWD Inclined Fisheries report for Lake LBJ at the time of submitting applications for all subsequent renewal or major amendment permit actions. If the LCRA terminates the stocked and managed program with TPWD, it must notify the TCEQ Industrial Permits Team, MC 148, upon termination and submit information required under 40 CFR § 122.21(r)(4) with the subsequent renewal or major amendment permit application.

Lake LBJ is operated in a manner consistent with a closed-cycle recirculating system, as defined at 40 CFR § 125.92(c), and the facility has been granted a waiver of application requirements in 40 CFR § 122.21(r)(4) based on submittal of the most recent TPWD Inclined Fisheries report for Lake LBJ. Application requirements under 40 CFR § 122.21(r)(9)-(13) are waived based on 40 CFR § 122.21(r)(1)(ii)(B) and 125.95(a)(3), pending review of the TPWD Inclined Fisheries report and the existing entrainment data submitted for application requirements under 40 CFR § 122.21(r)(7). Upon review, the TCEQ may request some or all of the application requirements under 40 CFR § 122.21(r)(9)-(13).

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Figure 7: TCEQ Letter Regarding Closed-Cycle Recirculating System

Mr. Bill Steinhauser
Page 2
February 17, 2017

The LCRA has requested an alternative submittal schedule for application requirements for the Thomas C. Ferguson Power Plant. Application requirements under 40 CFR §§122.21(r)(2), (3), and (5-8) must be submitted to the TCEQ Industrial Permits Team, MC 148, no later than January 31, 2018. Other Requirement No. 8 has been added to the draft permit requiring the applicant to submit biannual reports on the status of application requirements development to ensure the applicant is making progress towards compliance with Clean Water Act section 316(b) requirements.

Sincerely,

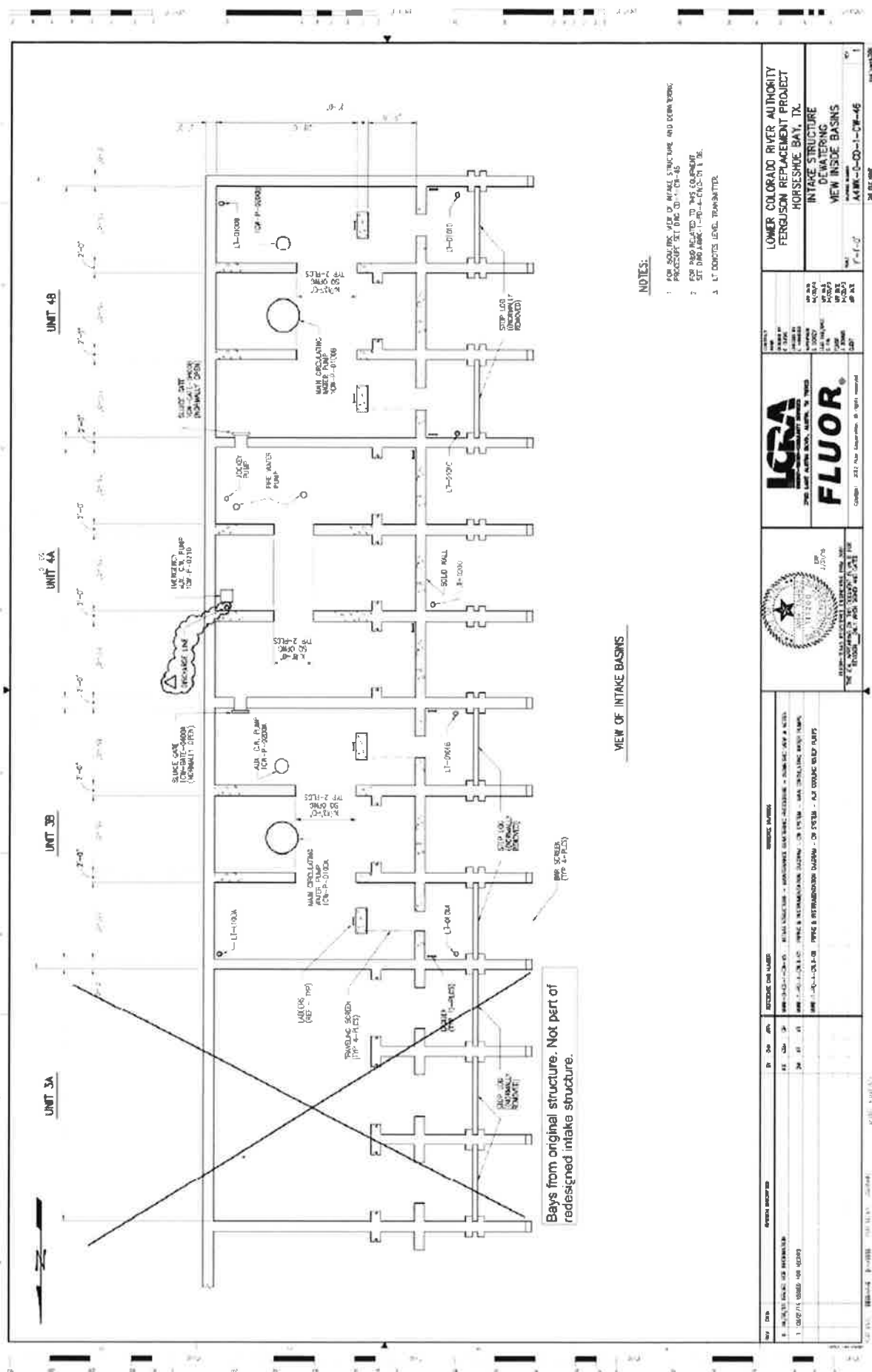


G. Michael Lindner, Team Leader
Industrial Permits Team
Water Quality Division (MC 148)
Texas Commission on Environmental Quality

GML/SMG/ml

Enclosures

Figure 7 (continued): TCEQ Letter Regarding Closed-Cycle Recirculating System



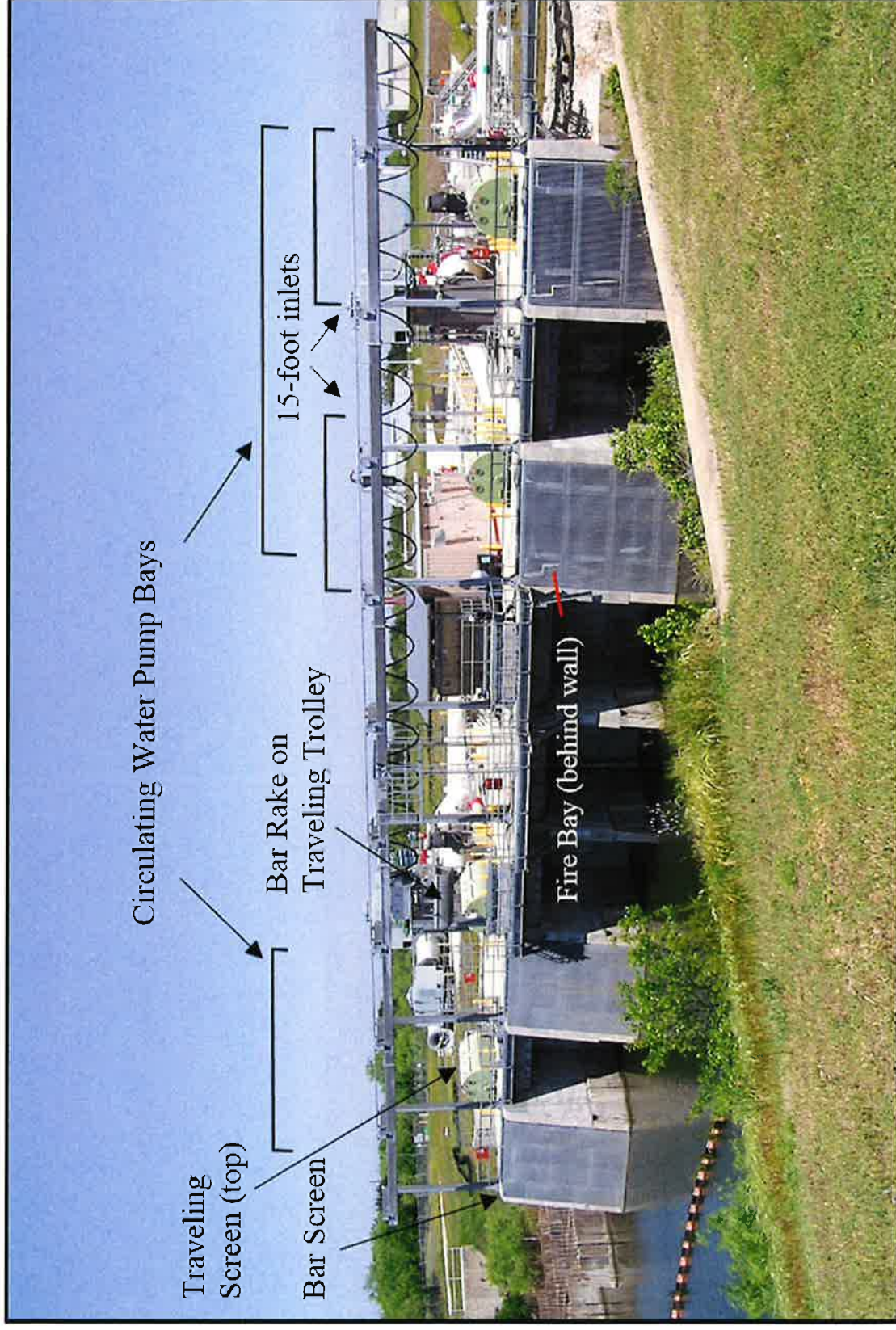


Figure 9: Components of Redesigned Cooling Water Intake Structure

LCRA – Ferguson
Water Intake Structure Equipment
Bar Screen

Low Water Level before bar screen		Screen Width		Flow		Ff	Submerged Screen area gross		Blockage	Velocity between Bars	
m	ft	W		F		s / s + t	L * W		B	F/(L*W*F*(1-B/100))	
		m	ft	m ³ /h	gpm		m ²	ft ²		m/s	ft/s
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	0	0.138	0.454
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	10	0.154	0.504
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	20	0.173	0.567
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	30	0.198	0.649
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	40	0.231	0.757
5.79	19	4.57	15	11,362	50,030	0.862	26.48	285	50	0.277	0.908
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	0	0.109	0.359
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	10	0.122	0.399
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	20	0.137	0.449
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	30	0.156	0.513
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	40	0.182	0.598
7.32	24	4.57	15	11,362	50,030	0.862	33.45	360	50	0.219	0.718
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	0	0.067	0.221
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	10	0.075	0.246
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	20	0.084	0.276
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	30	0.096	0.316
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	40	0.112	0.368
11.89	39	4.57	15	11,362	50,030	0.862	54.35	585	50	0.135	0.442

s = bar spacing = 50 mm t = thickness of bar = 8 mm Ff = Free Area Factor

Rated Flow Circ Water Pump = 92,410 gpm
 Rated Flow Aux Cooling Water Pump = 7,650 gpm
 Total flow per Pump Bay = 100,060 gpm
 /2 = flow per Screen = 50,030 gpm

Figure 10a: Ferguson Bar Screen Through Screen Velocity

LCRA – Ferguson

Water Intake Structure Equipment
Traveling Band Screen

Low Water Level before Band Screen		No. of submerged panels	Panel Area		Flow		Ff	Submerged Screen area gross		Blockage	Velocity between Meshes	
m	ft		m ²	ft ²	m ³ /h	gpm		m ²	n * A		m/s	ft/s
		n		A		F	$s^2/(s+e)^2$		n * A	B	$F/(A*n*Ff*(1-B/100))$	
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	0	0.126	0.414
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	10	0.140	0.460
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	20	0.158	0.517
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	30	0.180	0.591
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	40	0.210	0.689
5.79	19	24.6	1.346	14.488	11,362	50,030	0.756	33.11	356.40	50	0.252	0.827
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	0	0.101	0.331
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	10	0.112	0.368
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	20	0.126	0.414
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	30	0.144	0.474
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	40	0.168	0.552
7.32	24	30.7	1.346	14.488	11,362	50,030	0.756	41.32	444.78	50	0.202	0.663
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	0	0.064	0.209
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	10	0.071	0.232
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	20	0.080	0.261
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	30	0.091	0.298
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	40	0.106	0.348
11.89	39	48.7	1.346	14.488	11,362	50,030	0.756	65.55	705.57	50	0.127	0.418

s = mesh spacing = 8 mm e = thickness of wire = 1,2 mm Ff = Free Area Factor

Rated Flow Circ Water Pump = 92,410 gpm
 Rated Flow Aux Cooling Water Pump = 7,650 gpm
 Total flow per Pump Bay = 100,060 gpm
 /2 = flow per Screen = 50,030 gpm

Figure 10b: Ferguson Traveling Band Screen Through Screen Velocity

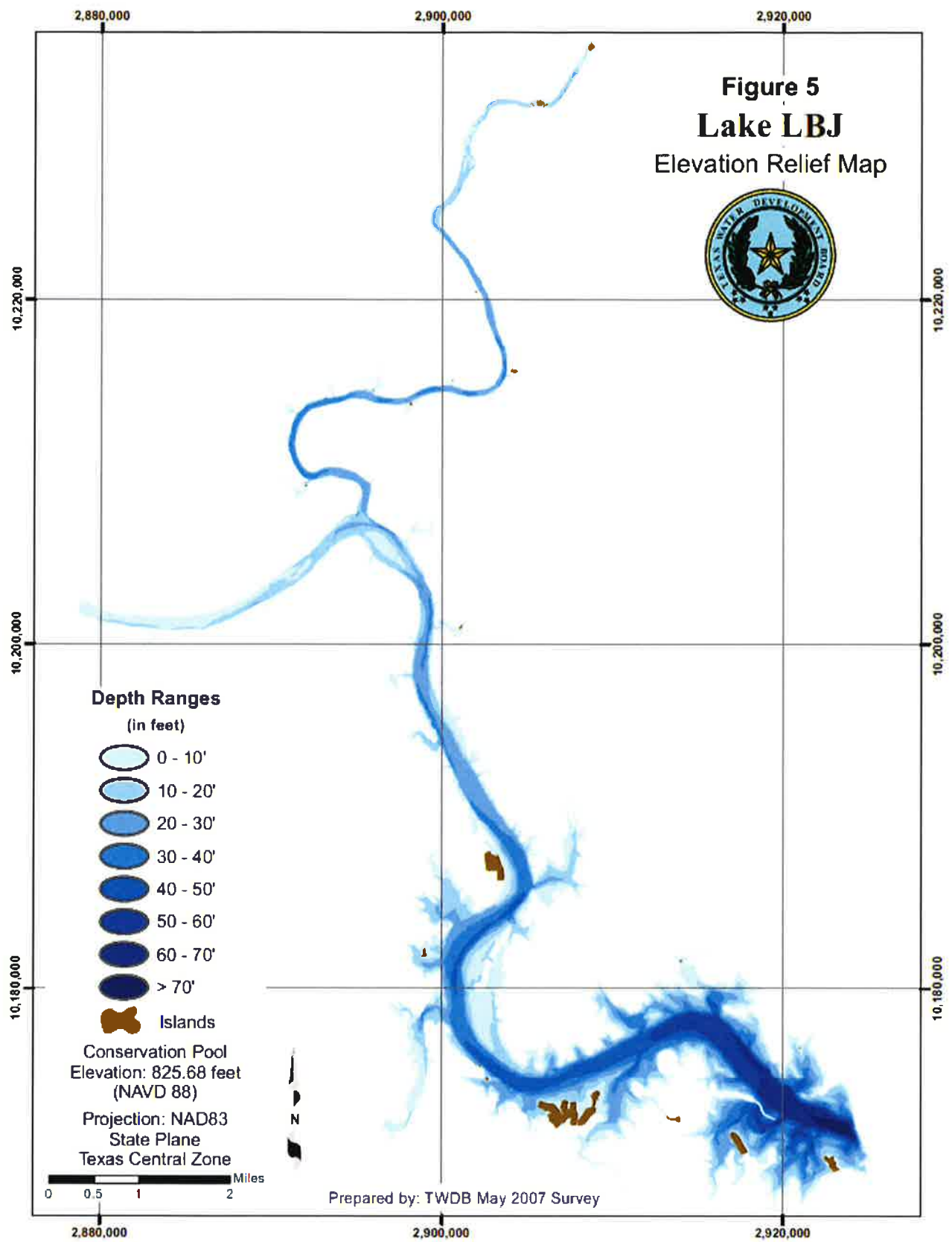


Figure 11: Depths Map of Lake LBJ (TWDB, 2007)

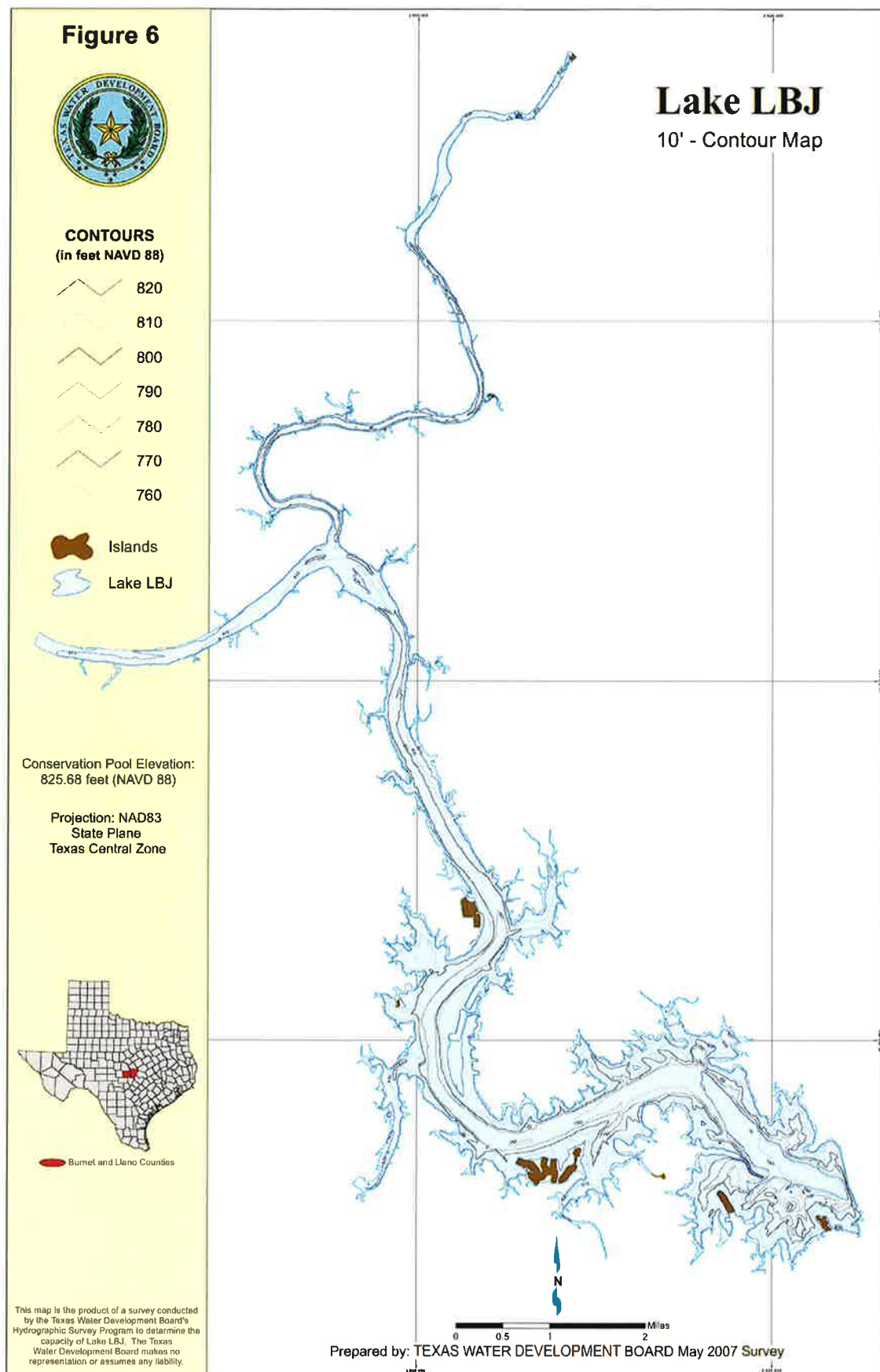


Figure 12: Contour Map of Lake LBJ (TWDB, 2007).

ATTACHMENT: TCF-TECH-7
EXISTING ENTRAINMENT STUDIES

Lyndon B. Johnson Reservoir

2020 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Lyndon B. Johnson (LBJ) Reservoir were surveyed in 2020 using electrofishing, and in 2021 using gill netting. Historical data are presented with the 2017-2021 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Lyndon B. Johnson Reservoir is a stable-level 6,502-acre impoundment of the Colorado and Llano Rivers in Burnet and Llano counties, Texas. It was constructed in 1951 by the Lower Colorado River Authority (LCRA) for purposes of hydro-electric and steam-electric power, flood control, and water conservation. The reservoir has a drainage area of approximately 36,290 square miles and a shoreline length of about 270 miles. Residential and commercial properties border most of the shoreline area.

Management History: Important sport fish include Largemouth Bass, Channel Catfish, and White Bass. Management activities included Florida Largemouth Bass stockings from 2011 to 2016 to improve the potential for trophy Largemouth Bass, and conducting annual aquatic vegetation surveys to monitor exotic invasive species. The reservoir is managed under statewide regulations. Lyndon B. Johnson Reservoir had little vegetative coverage prior to 2012.

Fish Community

- **Prey species:** Bluegill, Gizzard Shad, and Redbreast Sunfish were the predominant prey species in 2020. Threadfin Shad and Redear Sunfish were also available as forage. The forage base was sufficient to support sportfish.
- **Catfishes:** Blue Catfish relative abundance was low, as was the case in previous surveys. Channel Catfish was the predominant catfish species in the reservoir; catch rate had increased since the previous two surveys. Flathead Catfish were present in low numbers.
- **White Bass:** This reservoir continued to support a low-abundance White Bass population. Most individuals sampled were of harvestable size.
- **Largemouth Bass:** Largemouth Bass abundance was moderate; population size structure was good, and overall body condition for most fish was close to optimal.

Management Strategies: Based on current information, the reservoir should continue to be managed with existing regulations. Aquatic vegetation surveys should continue to be conducted annually to monitor coverage of non-native water hyacinth, Eurasian watermilfoil, and hydrilla. Standard gill netting and electrofishing surveys will be conducted in 2024 – 2025, and an additional electrofishing survey in 2022.

Introduction

This document is a summary of fisheries data collected from Lyndon B. Johnson (LBJ) Reservoir from 2017-2021. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2017-2021 data for comparison.

Reservoir Description

Lyndon B. Johnson Reservoir is a 6,502-acre impoundment of the Colorado and Llano rivers in Burnet and Llano counties, Texas. It was constructed in 1951 by the Lower Colorado River Authority (LCRA) for purposes of hydro-electric and steam-electric power production, flood control, and water conservation. The reservoir is eutrophic with a mean TSI chl-a of 56.40, and a 10-year change of +3.72 (Texas Commission on Environmental Quality 2020). Lyndon B. Johnson Reservoir has a drainage area of approximately 36,290 square miles and a shoreline length of 270 miles. This is a stable-level reservoir (825 ft. above mean sea level), and lies within the Edwards Plateau ecological area and Colorado River Basin. Land use in the watershed is predominantly ranching. Residential and commercial properties border most of the shoreline. Shoreline habitat at the time of sampling consisted mostly of bulkhead with docks, and vegetated natural shoreline. Aquatic vegetation is present, but has been below optimal levels for fish production (Durocher 1984; Dibble et al. 1996). Other descriptive characteristics for LBJ Reservoir are in Table 1.

Angler Access

Angler access at LBJ Reservoir was good for boat anglers, but poor for bank anglers. Nineteen concrete boat ramps were available for anglers. Of the 19 ramps, two are considered the primary public ramps on the reservoir, Cottonwood Shores (lower reservoir) and the Kingsland Lions Club (upper reservoir). Cottonwood Shores requires a fee. The remaining ramps are controlled by various home-owner associations, but provide access to lake area residents. Additional boat ramp characteristics are in Table 2.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Farooqi and De Jesus 2017) included:

1. Continue annual aquatic vegetation surveys and conduct an additional electrofishing survey in 2018 to monitor the Largemouth Bass population in response to vegetation dynamics.

Action: With the exception of 2018, annual vegetation surveys have been conducted since 2017. A major flood occurred at the reservoir in October 2018, which resulted in structural damage, and prevented the 2018 vegetation and electrofishing surveys.

2. Continue online monitoring of the results of Largemouth Bass tournaments to capture large fish data.

Action: Largemouth Bass tournament data was collated from 2012 to 2021.

3. Continue to engage partners and the general public about the negative impacts of aquatic invasive species through the use of print media, social media, and public engagements.

Action: Outreach efforts regarding invasive species included social media, print media, public presentations, and one-on-one interactions with constituents.

Harvest regulation history: Sport fish in LBJ Reservoir have been, and are currently managed with statewide regulations (Table 3).

Stocking history: Florida Largemouth Bass were first stocked in LBJ Reservoir in 1976. They were last stocked between 2011 to 2016 to improve the growth potential for Largemouth Bass. In 2010, a 13.7-pound bass from LBJ Reservoir was submitted to the ShareLunker selective breeding program and a

portion of the offspring (2,220 ShareLunker Largemouth Bass fingerlings) were stocked in LBJ Reservoir. The most recent Channel Catfish stockings were in 2012, 2013, and 2016. The complete stocking history is in Table 4.

Vegetation/habitat management history: The reservoir had sub-optimal aquatic vegetation coverage for fish production (Durocher 1984; Dibble et al. 1996). In efforts to increase native aquatic vegetation coverage, nine sites were planted with aquatic vegetation beginning in 2000 and these have been evaluated since 2005. Little expansion was documented at most sites (Bonds and Magnelia 2005); however, one site had thrived (DeJesus and Magnelia 2009).

While aquatic vegetative coverage has been low from a fishery perspective, reservoir-based businesses and waterfront homeowners have been impacted by localized nuisance vegetation issues. With the cooperation and participation of LCRA, municipal authorities that surround the reservoir, and Texas Parks & Wildlife Department (TPWD), a nuisance aquatic vegetation management plan was developed by TPWD in 2015 to help coordinate treatment proposals on behalf of applicants for localized nuisance aquatic vegetation control. The plan is no longer in effect.

Water hyacinth was first documented in 2003 in one cove of the reservoir and has spread. This species is still only present in small quantities. Herbicide treatments have successfully been used by the LCRA to control large scale infestations of this species. Eurasian watermilfoil has been the dominant non-native species since 2011.

Most of the shoreline habitat was comprised of bulkhead, and natural vegetated shoreline.

Water transfer: No inter-basin water transfers are known to exist at LBJ Reservoir.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for LBJ Reservoir (Farooqi and De Jesus 2017). Primary components of the OBS plan are listed in Table 5. All survey sites (Appendix A) were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (1.5 hours at 18, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing. Category 2 age and growth analysis was performed for Largemouth Bass according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Gill netting – Catfish and White Bass were collected by gill netting (10 net nights at 10 stations). Catch per unit effort for gill netting was recorded as the number of fish caught per net night (fish/nn). Category 2 age and growth analysis was performed for White Bass according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Genetics – Genetic analysis of Largemouth Bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017). Micro-satellite DNA analysis was used to determine genetic composition of individual fish.

Statistics – Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of Vulnerability (IOV) was calculated for Gizzard Shad (DiCenzo et al. 1996). Standard error (SE) was calculated for structural indices and IOV.

Habitat – A structural habitat survey was last conducted in 2016. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Results and Discussion

Habitat: A structural habitat survey was not conducted in 2020 since large-scale changes in structural habitat were not suspected. The last structural survey was conducted in 2016 (Farooqi and De Jesus 2017) when habitat consisted primarily of bulkheads and natural shoreline (Table 6). In 2020, native vegetation and non-native vegetation covered < 1% of the reservoir's surface area (Table 7; Appendix B). Total coverage estimate of all plant species from 2017 to 2020 (ranging from 0.7 % to 2.5% of the reservoir's surface area) was considerably lower than that considered optimum for productive fisheries (Dibble et al. 1996, Durocher et al. 1984). Prior to 2016, the dynamics of vegetative coverage in the reservoir had been driven largely by Eurasian watermilfoil (Farooqi and De Jesus 2017). Drought conditions that prevailed from 2011 to 2014 most likely created an environment in which Eurasian watermilfoil could flourish. As the drought ended, Eurasian watermilfoil coverage was reduced to 0.0% by 2016, likely aided by heavy grazing from coots, and has not recovered since then.

Hydrilla became established by 2014 (22.3 acres) and reached 112.9 acres (1.8% of reservoir surface area) by 2016 (Farooqi and De Jesus 2017). In 2017, hydrilla covered 18.9 acres, but has not been detected since then. Water hyacinth coverage has remained < 1 acre since 2017.

Prey species: Bluegill, Gizzard Shad, and Redbreast Sunfish were the predominant prey species in 2020. Threadfin Shad and Redear Sunfish were also available as forage (Appendix C).

In 2020, Threadfin Shad CPUE was 50.7/h which was less than that obtained in 2016 (305.3/h); nevertheless, Threadfin Shad CPUE was higher than in 2012 (8.0/h) and 2010 (34.0/h). Total CPUE of

Gizzard Shad (165.3/h) was higher than in previous surveys conducted in 2016 (88.7/h), 2012 (106.7/h; Figure 1), and 2010 (121.3/h). Index of vulnerability for Gizzard Shad was relatively low (24); indicating 24% of Gizzard Shad were of vulnerable size (< 8 inches) to existing predators. The IOV was lower than in 2016 (47), but was still an improvement compared to the 2012 (4) and 2010 (8) surveys. Historically, this reservoir has had low IOV values (De Jesus and Magnelia 2009).

Total CPUE of Redbreast Sunfish in 2020 (117.3/h) was higher than in 2016 (75.3/h), but was lower than in 2012 (186.0/h). Larger fish (up to 7 inches in length) were present, providing some good opportunities for sunfish anglers and population size structure was adequate as indicated by a PSD of 25 (Figure 2). A new water body record (rod and reel) for Redbreast Sunfish (0.8 pounds, 10.0 inches) was established in 2017.

Bluegill was the most abundant prey species. In 2020, total CPUE of Bluegill (227.3/h) had improved compared to 2016 (94.7/h), but was less than in 2012 (307.3/h). Although less abundant than in previous years, fish in the 6 to 8-inch size range were still present (PSD-P = 1) and overall population size structure was good (Figure 3). Relatively lower catch rates of Redear Sunfish (42.7/h) and Longear Sunfish (12.0/h) were obtained in 2020. A new water body record (rod and reel) for Longear Sunfish (0.88 pounds, 10.75 inches) was established in 2017.

Catfishes: Blue Catfish relative abundance was low (1.1/nn in 2021), as was the case in previous surveys (0.5/nn in 2017 and 0.3/nn in 2013); the few individuals that were sampled were large fish – up to 33 inches in length (PSD=65; PSD-P=12). Juvenile fish production was not detected (Figure 4). Blue Catfish have never been stocked in the reservoir by TPWD so their presence could be due to emigration from upstream reservoirs or unauthorized introductions. Relative weight was good (> 90) for the majority of stock size fish. The current water body record (rod and reel) for Blue Catfish was established in 2016 (71.4 pounds, 51.8 inches).

Channel Catfish was the predominant catfish species in the reservoir. Objective based sampling metrics (Table 5) were met. In 2021, the total gill net catch rate of Channel Catfish had increased to 8.6/nn compared to 2.7/nn in 2017 and 1.8/nn in 2013 (Figure 5). In 2021, CPUE-12 (4.4/nn) indicated a good proportion of the fish sampled were above harvestable-size (≥ 12 inches), and the largest fish was 27 inches in length (PSD=56; PSD-P=3). Body condition of harvestable-size Channel Catfish was good with most fish having relative weights ≥ 90 , and some fish were at or above optimum (≥ 100).

Flathead Catfish relative abundance is typically low in this reservoir. Total CPUE of Flathead Catfish was 1.5/nn in 2021 compared to 0.5/nn in 2017 and 1.2/nn in 2013 (Figure 6). Nearly all the fish collected were over harvestable-size (≥ 18 inches) and the largest fish measured 29" in length (PSD=91; PSD-P=17). Relative weight of stock-size fish was quite variable, nevertheless nearly all the fish had a W_r of ≥ 85 , and some fish were at or above optimum (≥ 100).

White Bass: This reservoir continued to support a low-abundance White Bass population. The total CPUE of White Bass was 2.5/nn in 2021 compared to 1.6/nn in 2017 and 1.5/nn in 2013 (Figure 7). The total catch rate in 2021 (2.5/nn) was a little higher than the average (1.8/nn) calculated from the previous eight surveys going back to 1997. Furthermore, most individuals sampled were of harvestable size (≥ 10 inches) with the largest fish measuring 15 inches long (PSD=89, PSD-P=11). Body condition was sub-optimum ($W_r < 100$) ranging from 80 to 92. Based on a Category 2 age and growth analysis, all 11 fish were 2 years old (Figure 8). In the absence of age-1 fish, we can infer that White Bass reached harvestable size (10 inches) between age 1 and 2, as was the case in previous years (Farooqi and De Jesus 2017). A new water body record (rod and reel) for White Bass (3.6 pounds, 19.0 inches) was established in 2017.

Largemouth Bass: In 2020, the reservoir contained a moderate density Largemouth Bass population relative to bass populations in other central Texas reservoirs. Objective based sampling metrics (Table 5) were met. The total CPUE of Largemouth Bass was 82.7/h in 2020 which was consistent with catch rates of 60.7/h in 2016 and 70.0/h in 2014 (Figure 9) and was equal to the 22-year average total CPUE of

82.7/h. The CPUE of larger size classes of Largemouth Bass were also more consistent with the previous two surveys. The electrofishing catch rate of stock-length Largemouth Bass was 49.3/h in 2020 compared to 54.0/h in both 2016 and in 2014. However, there was a decline in the catch rate of harvestable bass (CPUE-14) in 2020 (12.0/h), compared to 2016 (21.3/h) and 2014 (16.7/h). Nevertheless, in all three surveys, CPUE-14 was above the historical average of 10.4/h for LBJ Reservoir. Population size structure in the last three surveys was good; population indices (Figure 9) were within the expected range (PSD 40 to 70, PSD-P 10 to 40, PSD-M 0 to 10) for a balanced population (Gabelhouse 1984). Overall, body condition was close to optimal ($W_r=100$) in 2020, with fish in most length groups having relative weights of between 90 and 102. Category 2 age and growth analysis was not completed due to an inadequate sample size ($n=5$).

In 2016, Florida Largemouth Bass influence was 58.0%; nearly all the fish were intergrades. Florida Largemouth Bass influence has remained relatively constant during the last four evaluations since 2006, ranging from 58.0% to 66.0% of Florida Largemouth Bass alleles (Table 8), even though the reservoir was stocked with Florida Largemouth Bass annually from 2011 to 2016. Due to the historic genetic stability of the Largemouth Bass population and the level of Florida Largemouth Bass alleles, no genetic analysis was performed in 2020.

The characteristics of the Largemouth Bass population in LBJ Reservoir have made it a popular venue for tournaments. One of the biggest local organizations is the Texas Tournament Zone which has held annual tournaments on the reservoir from 2012 to 2021 (although no data was available from 2013 and 2019). Appendix D shows that annual mean bag weight (ranging from 13.2 lbs to 20.7 lbs) and mean fish weight per year (2.7 lbs to 4.1 lbs) has been very similar since 2012. Total annual bag weight has varied from 328.9 lbs to 517.4 lbs. The size of the largest fish caught during tournaments has varied from 7.5-10.6 lbs. The total number of fish caught by the top 25 ranking teams has varied from 112 to 125 since 2012. These statistics, derived from strong tournament activity, are indicative of a well performing Largemouth Bass fishery.

Fisheries Management Plan for LBJ Reservoir, Texas

Prepared – July 2021

ISSUE 1: Since 2015, there have been significant changes to the plant community driven by natural fluctuations that may influence Largemouth Bass population dynamics in the reservoir.

MANAGEMENT STRATEGIES

1. Continue annual aquatic vegetation surveys.
2. Conduct an additional electrofishing survey in 2022 to monitor the Largemouth Bass population in response to vegetation dynamics.

ISSUE 2: Largemouth Bass tournament activity has become a feature of this fishery and is indicative of its performance. Large individuals are reported caught by tournament anglers from an active tournament scene at LBJ Reservoir.

MANAGEMENT STRATEGY

1. Continue to monitor the Largemouth Bass tournament activity to capture fish data, particularly from the larger fish which are typically underrepresented by electrofishing.

ISSUE 3: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches, and plugging engine cooling systems. Giant salvinia and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing, and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state

MANAGEMENT STRATEGIES

1. Continue to cooperate with LCRA to ensure adequate appropriate signage at access points around the reservoir.
2. Continue to partner with marina owners regarding invasive species by providing them with posters, literature, etc. so that they can in turn educate their customers.
3. Continue to inform the public about invasive species through the use of media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2021–2025)

Sport fish, forage fish, and other important fishes

Important sport fish in Lyndon B. Johnson (LBJ) Reservoir include Largemouth Bass, White Bass, and Channel Catfish species. Known important forage species include Bluegill, Redbreast Sunfish, Gizzard Shad, and Threadfin Shad.

Low density fisheries

White Crappie: White Crappie total CPUE in 2012, 2008, 2004, and 2000 were 0.2, 3.5, 0.8, 4.5/nn respectively. The historical average total CPUE is 2.3/nn (range 0.8/nn – 4.5/nn). The CPUE-10 was 0.1/nn, 0.3/nn and 0.2/nn in 2012, 2008, and 2004, respectively. Sampling this population is not a priority for 2021-2025. However, any crappie caught while gill netting for Channel Catfish and White Bass will be enumerated.

Blue Catfish: Blue Catfish have not been stocked in LBJ Reservoir. Some Blue Catfish have been recorded in surveys and their presence is most likely a result of upstream emigration from stocked reservoirs. Blue Catfish total CPUE in 2021, 2017, 2013, 2009, 2005, and 2001 were 1.1, 0.5, 0.3, 0.2, 0.1, 0.1/nn, respectively. Sampling this population is not a priority for 2021-2025. However, we will monitor presence/absence of Blue Catfish while conducting gill netting surveys for Channel Catfish.

Flathead Catfish: Flathead Catfish are present in low abundance based on gill netting surveys. Flathead Catfish total CPUE in 2021, 2017, 2013, 2009, 2005, and 2001 were 1.5, 0.5, 1.2, 1.5, 1.6, 0.4/nn respectively. Sampling this population is not a priority for 2021-2025. However, we will monitor presence/absence while conducting gill netting surveys for Channel Catfish.

Forage Species

Bluegill, Redbreast Sunfish and Gizzard Shad: Bluegill, Redbreast Sunfish, Gizzard Shad, Threadfin Shad, and Redear Sunfish are the predominant prey species available in LBJ Reservoir. Sampling effort based on achieving sampling objectives for Largemouth Bass will result in sufficient numbers of Bluegill, Redbreast Sunfish and Gizzard Shad for size structure estimation (PSD for sunfish and IOV for Gizzard Shad; 50 stock-size fish minimum at 18 stations with 80% confidence), but not for relative abundance estimates ($RSE \leq 25$ of CPUE-Total (CPUE-T); anticipated effort is 25-30 stations). At the sampling effort needed to achieve sampling objectives for Largemouth Bass, the expected RSE for CPUE-T is 30 for Bluegill and Redbreast Sunfish, and 35 for Gizzard Shad. No additional effort will be expended to achieve an $RSE \leq 25$ for CPUE of Bluegill, Redbreast Sunfish, and Gizzard Shad. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Largemouth Bass are the most popular sport fish in LBJ Reservoir. Recent improvements in abundance and size structure of the population is reflected by an increase in Largemouth Bass fishing tournament activity since 2012. These statistics, derived from a strong presence of tournament activity, are indicative of a well performing Largemouth Bass fishery. A ShareLunker weighing 13.7 lbs. was caught from LBJ Reservoir in 2010. The popularity and growing reputation for quality Largemouth Bass fishing at this reservoir warrants sampling time and effort.

Trend data on CPUE, size structure, and body condition have been collected biennially since 2000 with fall nighttime electrofishing. Continuation of biennial trend data with night-electrofishing in the fall will allow for determination of any large-scale changes in the Largemouth Bass population. A minimum of 18 randomly selected 5-min electrofishing sites will be sampled in 2022 and 2024, but sampling will continue at random sites until 50 stock-size fish are collected and the RSE of CPUE-S is ≤ 25 (the anticipated effort to meet both sampling objectives is 18 stations with 80% confidence). Exclusive of the original 18 random stations, three additional random stations will be pre-determined in the event some extra sampling is necessary. If failure to achieve either objective has occurred after one night of sampling and objectives can be attained with 6-12 additional random stations, another night of effort will be expended.

Relative weight of Largemouth Bass $\geq 8"$ will be determined from their length/weight data (maximum of 10 fish weighed and measured per inch class). Ages for Largemouth Bass will be determined by a Category 2 evaluation using otoliths from 13 randomly selected fish (range 12.9 to 14.9 inches) to determine at what age fish reach harvestable size. Fin tissue samples will be taken from 30 randomly selected Largemouth Bass for genetic analysis.

Channel Catfish: Channel Catfish were last stocked in LBJ Reservoir in 2016. Target sample sizes to evaluate size structure and CPUE will be 50 stock-length fish, and an RSE of CPUE-S ≤ 30 . Based on the number of gill nets set in previous surveys, a minimum of 15 randomly selected gill net stations will be sampled, but sampling will continue at random stations until a minimum of 50 stock size Channel Catfish have been collected. In addition to the original 15 random stations, five additional random stations will be pre-determined in the event extra sampling is necessary.

White Bass: White Bass will be collected when sampling for Channel Catfish with gill nets. Sampling will be limited to general monitoring trend data (without precision or sample size requirements). An age and growth sample with a minimum of 13 fish between 9.0 and 10.9 inches in length will be collected from gill netting to assess the time required for White Bass to grow to the minimum length limit for harvest (Category 2 evaluation).

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Tables and Figures

Table 1. Characteristics of LBJ Reservoir, Texas.

Characteristic	Description
Year constructed	1951
Controlling authority	Lower Colorado River Authority
Counties	Burnet and Llano
Reservoir type	Mainstream: Colorado River
Shoreline Development Index	13.3
Conductivity	338 $\mu\text{S}/\text{cm}$

Table 2. Boat ramp characteristics for LBJ Reservoir, Texas, last assessed in September 2016. Reservoir elevation at time of survey was 824 ft. above MSL (conservation level is 825 ft. above MSL).

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft.)	Condition
Cottonwood Shores	30.550603 -98.337208	Y	50	NA	Good
Sherwood Forest Park	30.584761 -98.370508	Y	10	NA	Good
Clear Cove City Park	30.579892 -98.369933	Y	10	NA	Good
Timberhill Park	30.580825 -98.376675	Y	10	NA	Good
Belaire Park	30.576706 -98.385850	Y	10	NA	Good
Bluebriar City Park	30.593392 -98.395156	Y	10	NA	Good
Castleshoals Park	30.594089 -98.389842	Y	10	NA	Needs improvement
Dove Point Park	30.603619 -98.392897	Y	10	NA	Good
Boat Ramp #9	30.603883 -98.394597	N	10	NA	Needs improvement
Granite Shoals Park	30.604406 -98.406822	Y	10	NA	Needs improvement
Boat ramp #11	30.628600 -98.415583	N	10	NA	Good
Riverside View	30.647325 -98.418103	N	10	NA	Good
Boat Ramp #13	30.649772 -98.419142	N	10	NA	Good
Gas Station Boat Ramp	30.657461 -98.427850	N	15	NA	Good
Clearwater Marina	30.672928 -98.420567	Y	10	NA	Good
Boat Ramp #16	30.704183 -98.412719	N	10	NA	Good
RV and Boat Storage	30.491119 -98.429969	N	10	NA	Good
Kingsland Lions Club	30.653214 -98.436011	Y	15	NA	Needs improvement
Sidney Rowe Mem. Park	30.643678 -98.450256	Y	10	NA	Good

Table 3. Harvest regulations for LBJ Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids, and subspecies	25 (in any combination)	12-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5 ^a	14-inch minimum
Bass, Guadalupe	5 ^a	None
Crappie: White and Black Crappie, their hybrids, and subspecies	25 (in any combination)	10-inch minimum

^a Daily bag for Largemouth Bass and Guadalupe Bass = 5 fish in any combination.

Table 4. Stocking history for LBJ Reservoir, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL), adults (ADL) and unknown (UNK). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) is given. For years where there were multiple stocking events for a particular species and life stage the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Channel Catfish	1969	112,457	AFGL	7.9
	1971	263,925	AFGL	7.9
	1972	32,400	AFGL	7.9
	1984	7,682	AFGL	11.0
	1989	5,346	ADL	12.0
	1991	10,900	AFGL	5.9
	1994	580	AFGL	7.4
	2009	400	ADL	14.5
	2012	22,923	AFGL	4.3
	2012	40,179	FGL	1.1
	2012	62,371	FRY	0.9
	2013	17,995	AFGL	4.3
	2016	64,903	FGL	1.6
	Total	642,061		
Flathead Catfish	1971	52		0.0
	Total	52		
Florida Largemouth Bass	1976	64,600	FRY	1.0
	2001	228,300	FGL	1.4
	2002	420,790	FGL	1.6
	2011	338,740	FGL	1.5
	2012	335,752	FGL	1.5
	2013	472,365	FRY	0.3
	2014	330,103	FGL	1.6
	2015	240,671	FGL	1.7
	2016	156,140	FGL	1.8
	Total	2,587,461		
Green Sunfish x Redear Sunfish	1972	15,000		0.0
	Total	15,000		
Largemouth Bass	1971	308,126	FRY	0.7
	Total	308,126		

Table 4. Stocking history for LBJ Reservoir, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL), adults (ADL) and unknown (UNK). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) is given. For years where there were multiple stocking events for a particular species and life stage the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Palmetto Bass (Striped X White Bass hybrid)	1977	71,000	UNK	0.0
	1980	64,000	UNK	0.0
	Total	135,000		
ShareLunker Largemouth Bass	2010	2,220	FGL	2.5
	Total	2,220		
Smallmouth Bass	1976	25,000	UNK	0.0
	1984	59,400	FGL	2.0
	1985	59,500	FGL	2.0
	1986	747	AFGL	4.0
	Total	144,647		
Striped Bass	1983	59,881	UNK	0.0
	Total	59,881		
Walleye	1973	5,600,000	FRY	0.2
	1974	1,600,000	FRY	0.2
	Total	7,200,000		

Table 5. Objective-based sampling plan components for LBJ Reservoir, Texas 2020–2021.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Abundance	CPUE – stock	RSE-stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
Redbreast Sunfish ^a	Abundance	CPUE – total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
Bluegill ^a	Abundance	CPUE – total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50
Gizzard Shad ^a	Abundance	CPUE – total	RSE ≤ 25
	Size structure	Length frequency	N ≥ 50
	Prey availability	IOV	N ≥ 50
<i>Gill netting</i>			
White Bass	Abundance	CPUE – total	Presence/absence
	Size structure	Length frequency	Presence/absence
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches
Channel Catfish	Abundance	CPUE – stock	RSE-stock ≤ 30
	Size structure	Length frequency	N ≥ 50 stock
	Condition	W_r	10 fish/inch group (max)

^a No additional effort will be expended to achieve an RSE ≤ 25 for CPUE and N ≥ 50 for Redbreast Sunfish, Bluegill, and Gizzard Shad if not reached from designated Largemouth Bass sampling effort. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

Table 6. Survey of structural habitat types, LBJ Reservoir, Texas, last conducted in 2016.

Habitat type	Shoreline coverage (miles)	% of total
Bulkhead with Piers and Docks	138.3	51.2
Natural Shoreline	103.9	38.5
Natural Shoreline/Piers/Docks	21.0	7.8
Rocky Shoreline	4.4	1.6
Rocky Bluff	2.4	0.9

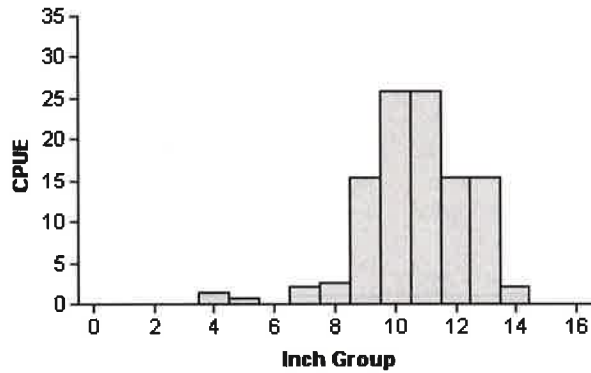
Table 7. Survey of aquatic vegetation, LBJ Reservoir, Texas, 2017 – 2020. Surface area (acres) is listed with percent of total reservoir surface area in parentheses. Surveys were conducted in the fall.

Vegetation	2017	2018	2019	2020
Native submersed	6.8 (0.1)	n/a	0.0	0.0
Native floating-leaved	7.1 (0.1)	n/a	11.3 (0.2)	10.4 (0.2)
Native emergent	103.7 (1.6)	n/a	28.1 (0.5)	26.7 (0.4)
<i>Non-native</i>				
Hydrilla (Tier I)*	18.9 (0.3)	n/a	0.0	0.0 (0.0)
Eurasian watermilfoil (Tier III)**	<1.0 (n/a)	n/a	0.0	0.0 (0.0)
Water Hyacinth (Tier I) *	<1.0 (n/a)	n/a	<1.0 (n/a)	<1.0 (n/a)
Elephant ear (Tier III)**	0.0	n/a	0.0	4.5 (0.1)

*Tier I is immediate Response, ** Tier III is Watch Status

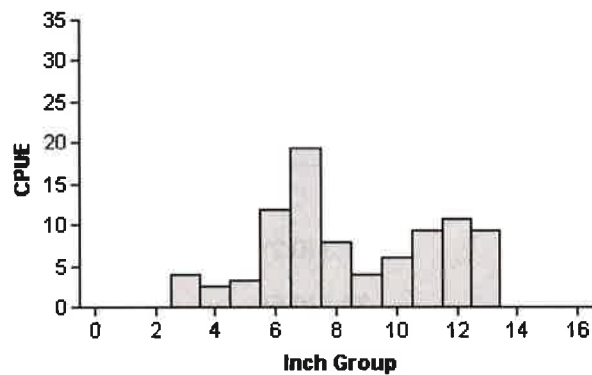
Gizzard Shad

2012



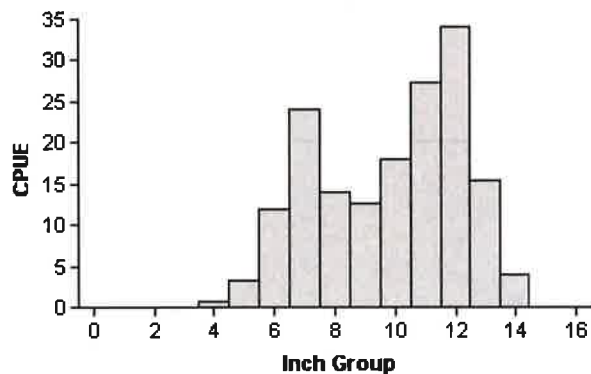
Effort = 1.5
 Total CPUE = 106.7 (17; 160)
 IOV = 4 (2)

2016



Effort = 1.5
 Total CPUE = 88.7 (26; 133)
 IOV = 47 (10)

2020

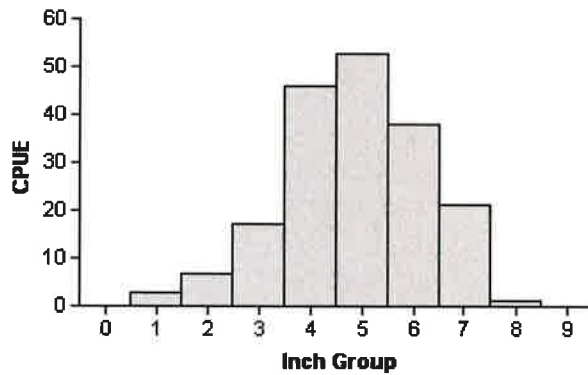


Effort = 1.5
 Total CPUE = 165.3 (24; 248)
 IOV = 24 (6)

Figure 1. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, LBJ Reservoir, Texas, 2012, 2016, and 2020.

Redbreast Sunfish

2012

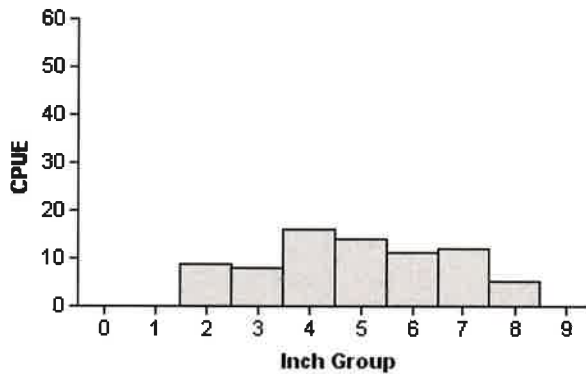


Effort = 1.5

Total CPUE = 186.0 (19; 279)

PSD = 34 (6)

2016

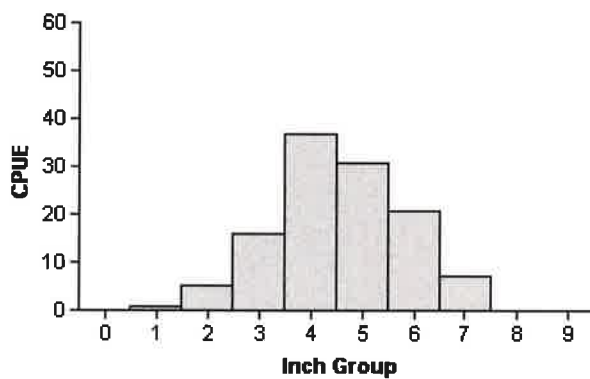


Effort = 1.5

Total CPUE = 75.3 (32; 113)

PSD = 43 (7)

2020



Effort = 1.5

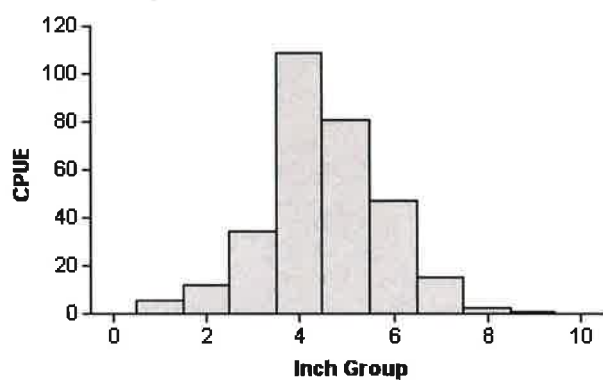
Total CPUE = 117.3 (27; 176)

PSD = 25 (4)

Figure 2. Number of Redbreast Sunfish caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, LBJ Reservoir, Texas, 2012, 2016, and 2020.

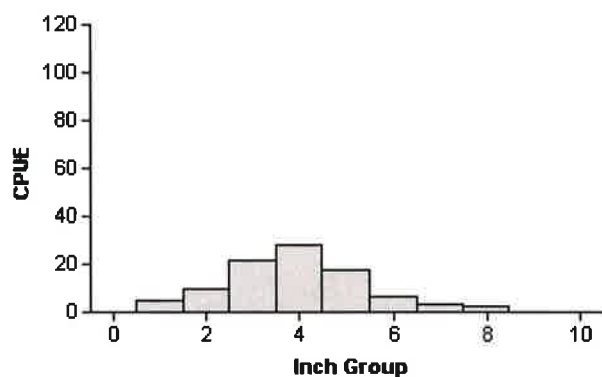
Bluegill

2012



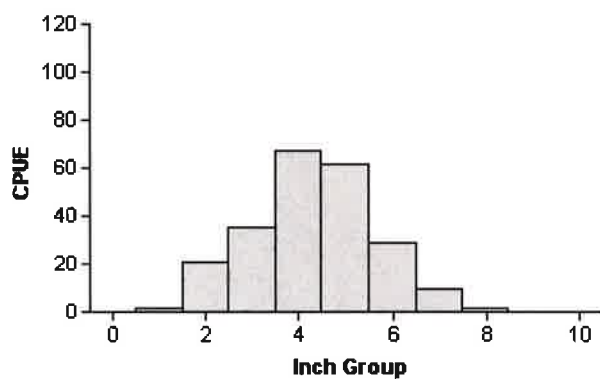
Effort = 1.5
 Total CPUE = 307.3 (18; 461)
 PSD = 23 (3)
 PSD-P = 1 (1)

2016



Effort = 1.5
 Total CPUE = 94.7 (23; 142)
 PSD = 16 (6)
 PSD-P = 3 (2)

2020



Effort = 1.5
 Total CPUE = 227.3 (15; 341)
 PSD = 20 (3)
 PSD-P = 1 (0)

Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, LBJ Reservoir, Texas, 2012, 2016, and 2020.

Blue Catfish

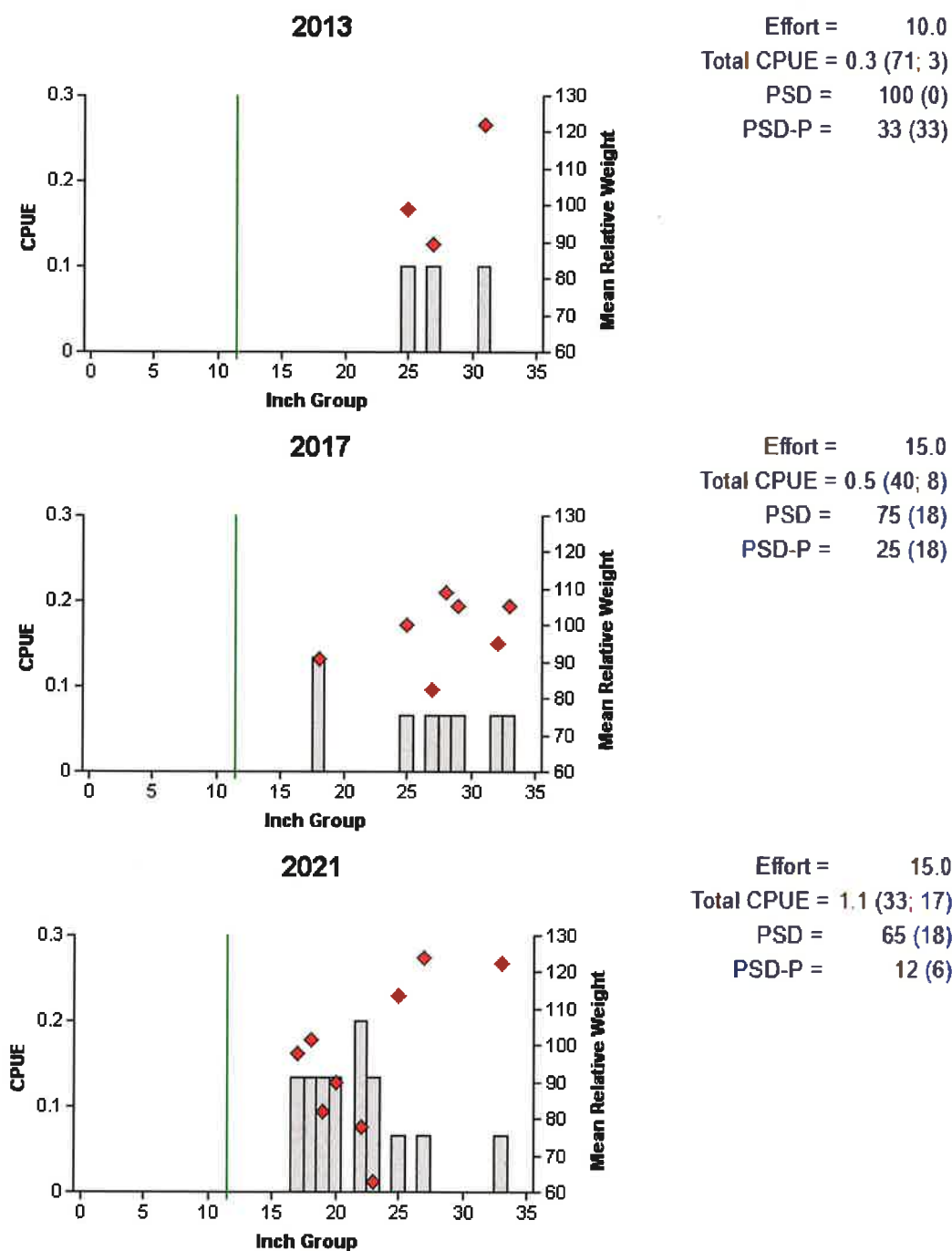


Figure 4. Number of Blue Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE are in parentheses) for spring gill net surveys, LBJ Reservoir, Texas, 2013, 2017, and 2021. Vertical line represents minimum length limit at the time of sampling.

Channel Catfish

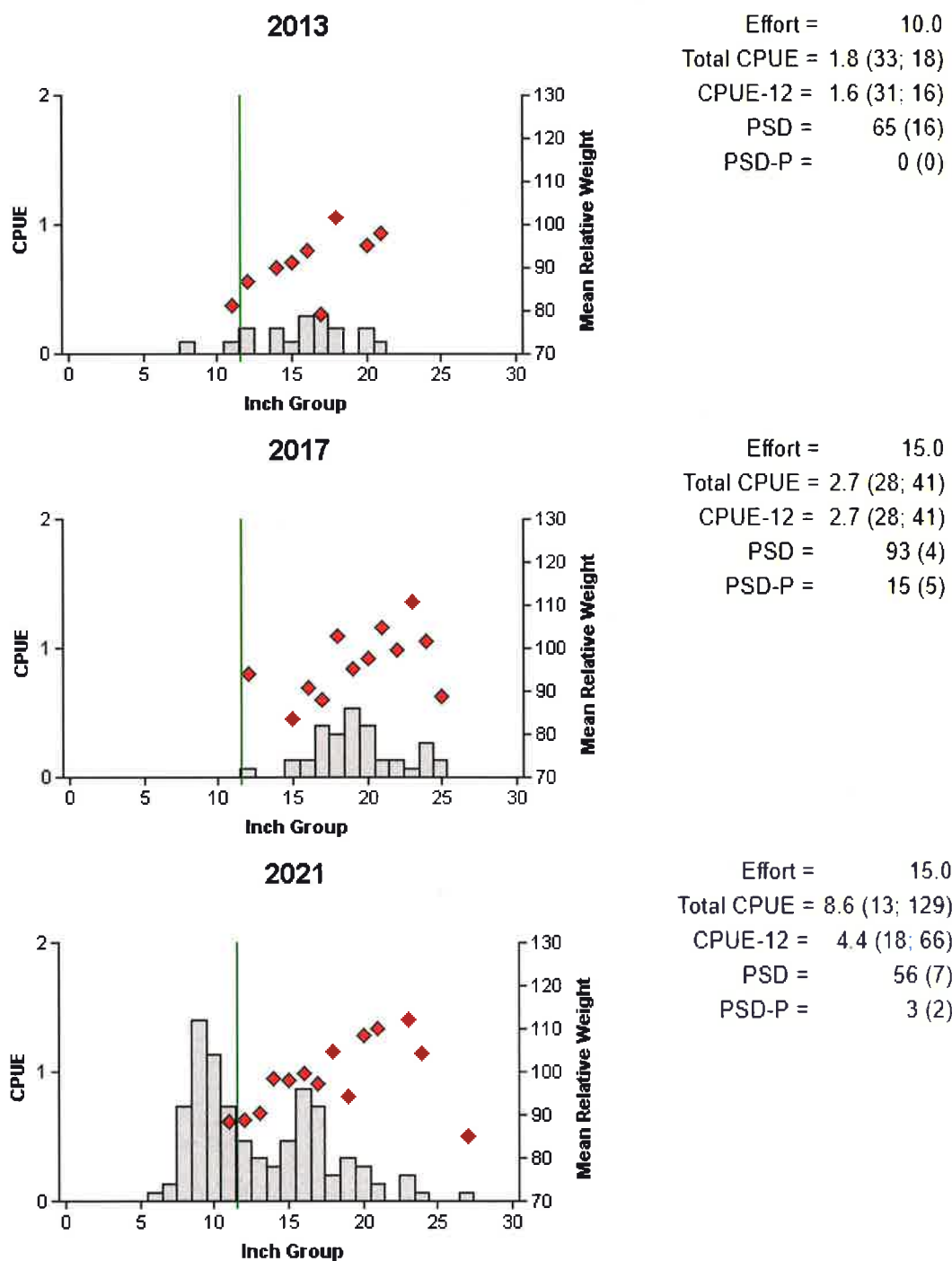


Figure 5. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, LBJ Reservoir, Texas, 2013, 2017, and 2021. Vertical line represents minimum length limit at the time of sampling.

Flathead Catfish

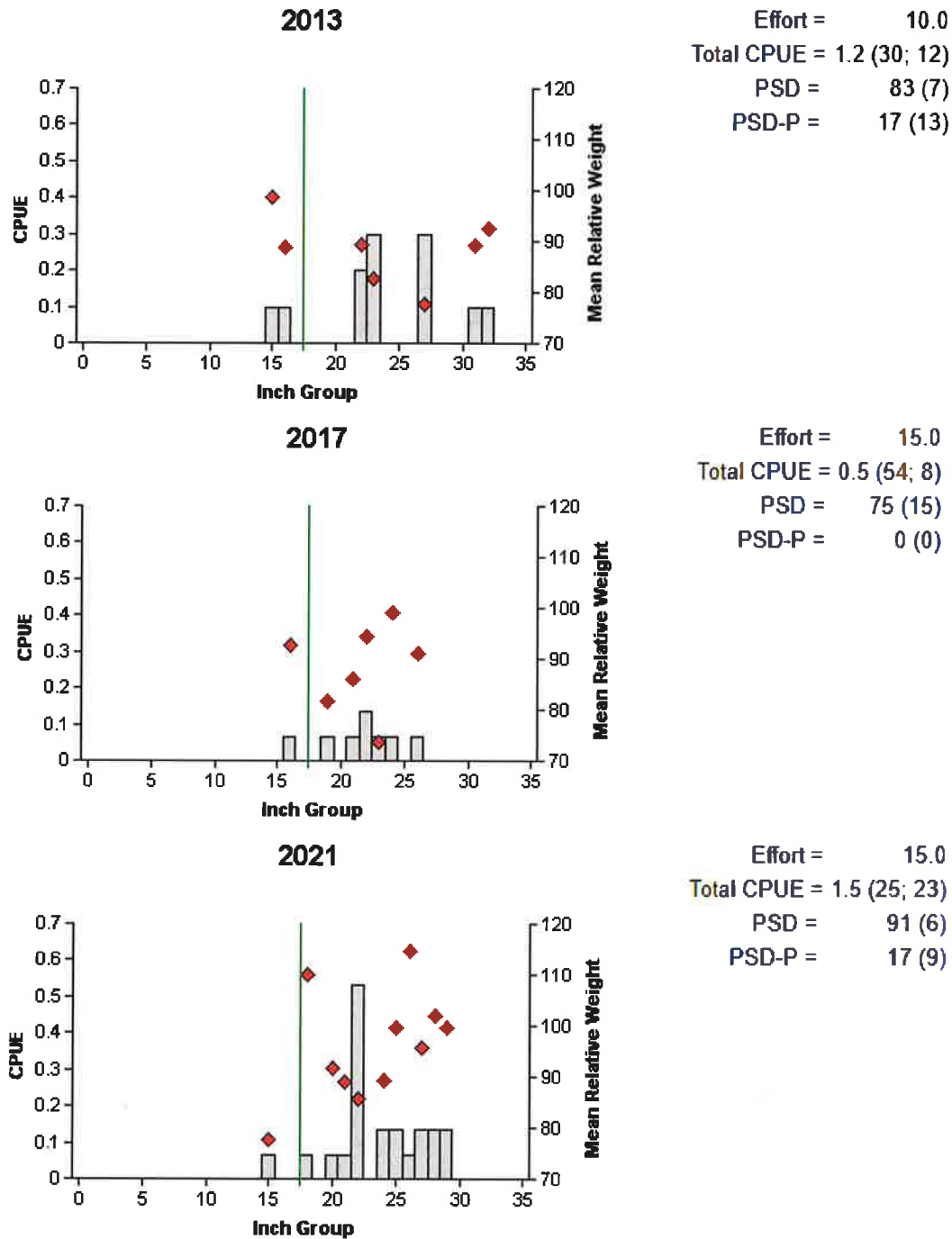


Figure 6. Number of Flathead Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE are in parentheses) for spring gill net surveys, LBJ Reservoir, Texas, 2013, 2017, and 2021. Vertical line represents minimum length limit at the time of sampling.

White Bass

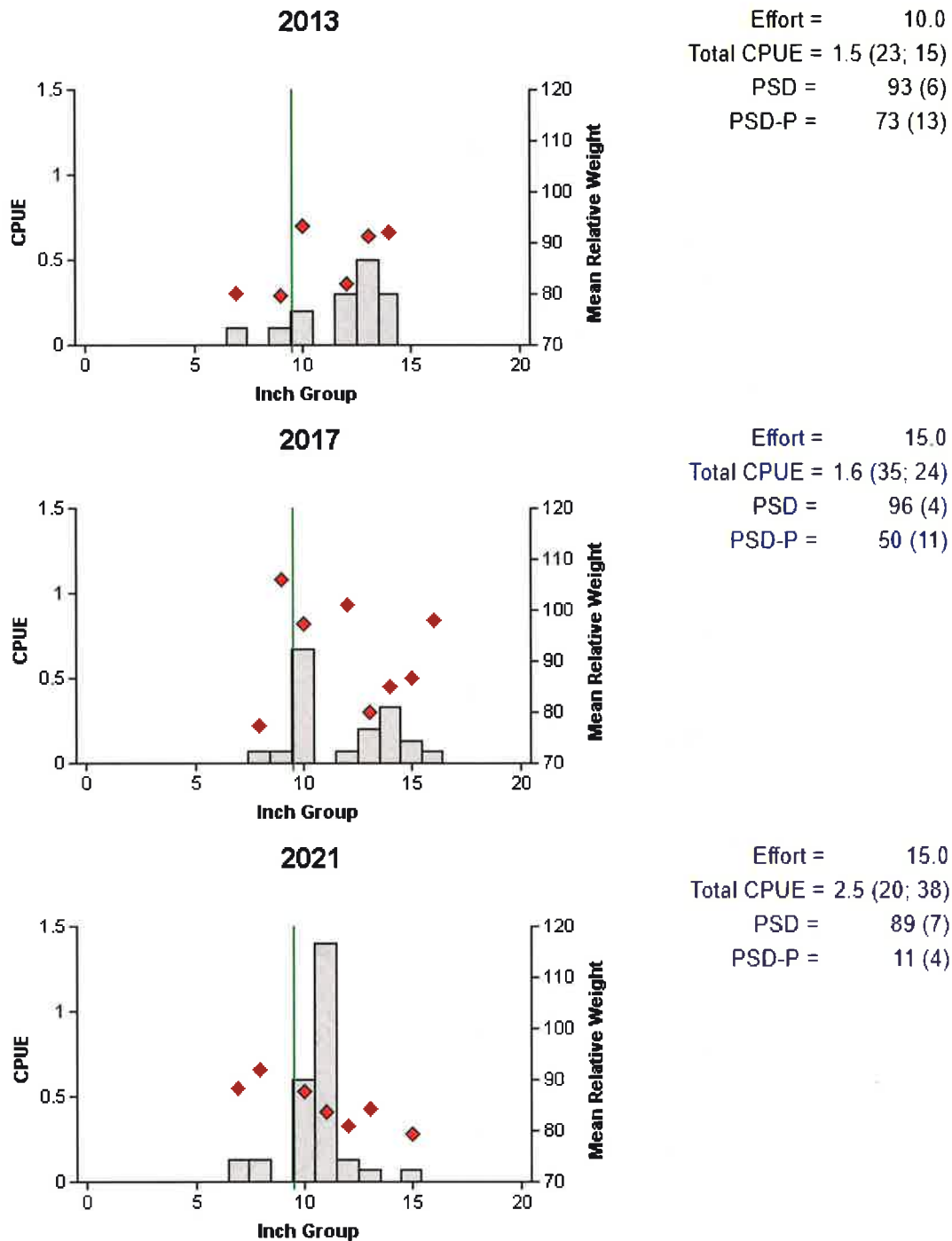


Figure 7. Number of White Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE are in parentheses) for spring gill net surveys, LBJ Reservoir, Texas, 2013, 2017, and 2021. Vertical line represent minimum length limit at the time of sampling.

White Bass

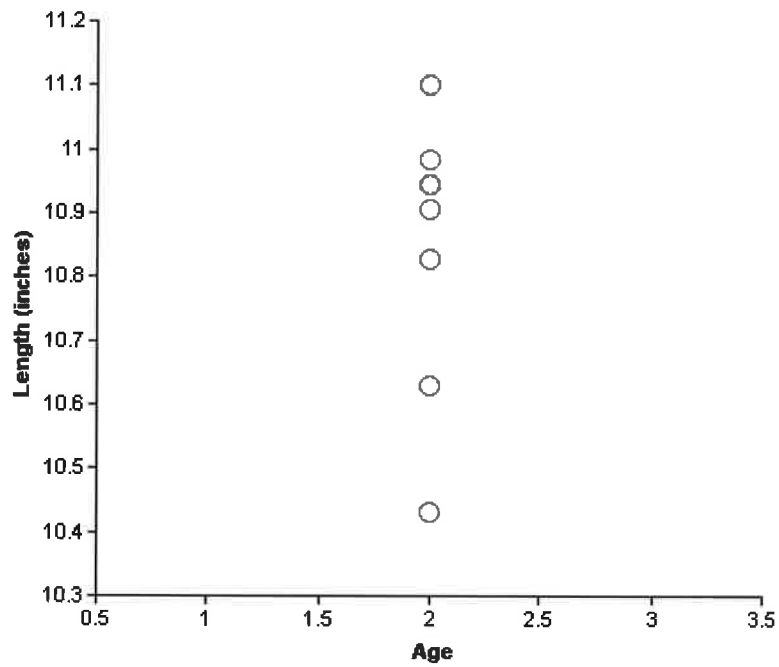


Figure 8. Length at age for White Bass (n=11) collected by gill netting at LBJ Reservoir, Texas, March 2021.

Largemouth Bass

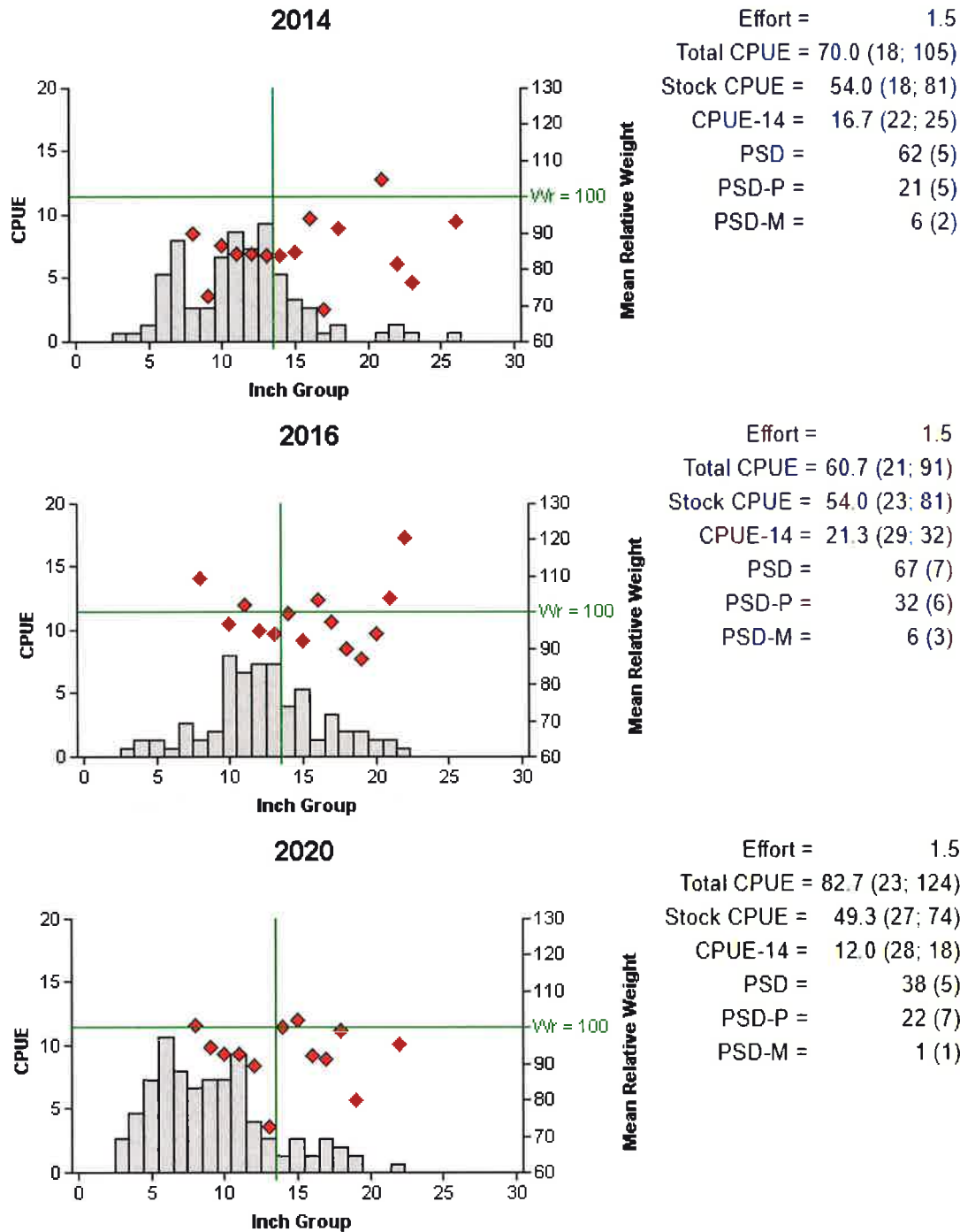


Figure 9. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, LBJ Reservoir, Texas, 2014, 2016, and 2020. Vertical line represents the minimum length limit at the time of sampling.

Table 8. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, LBJ Reservoir, Texas, 2006, 2008, 2012, and 2016. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, Intergrade = hybrid between a FLMB and a NLMB. Genetic composition was determined by micro-satellite DNA analysis.

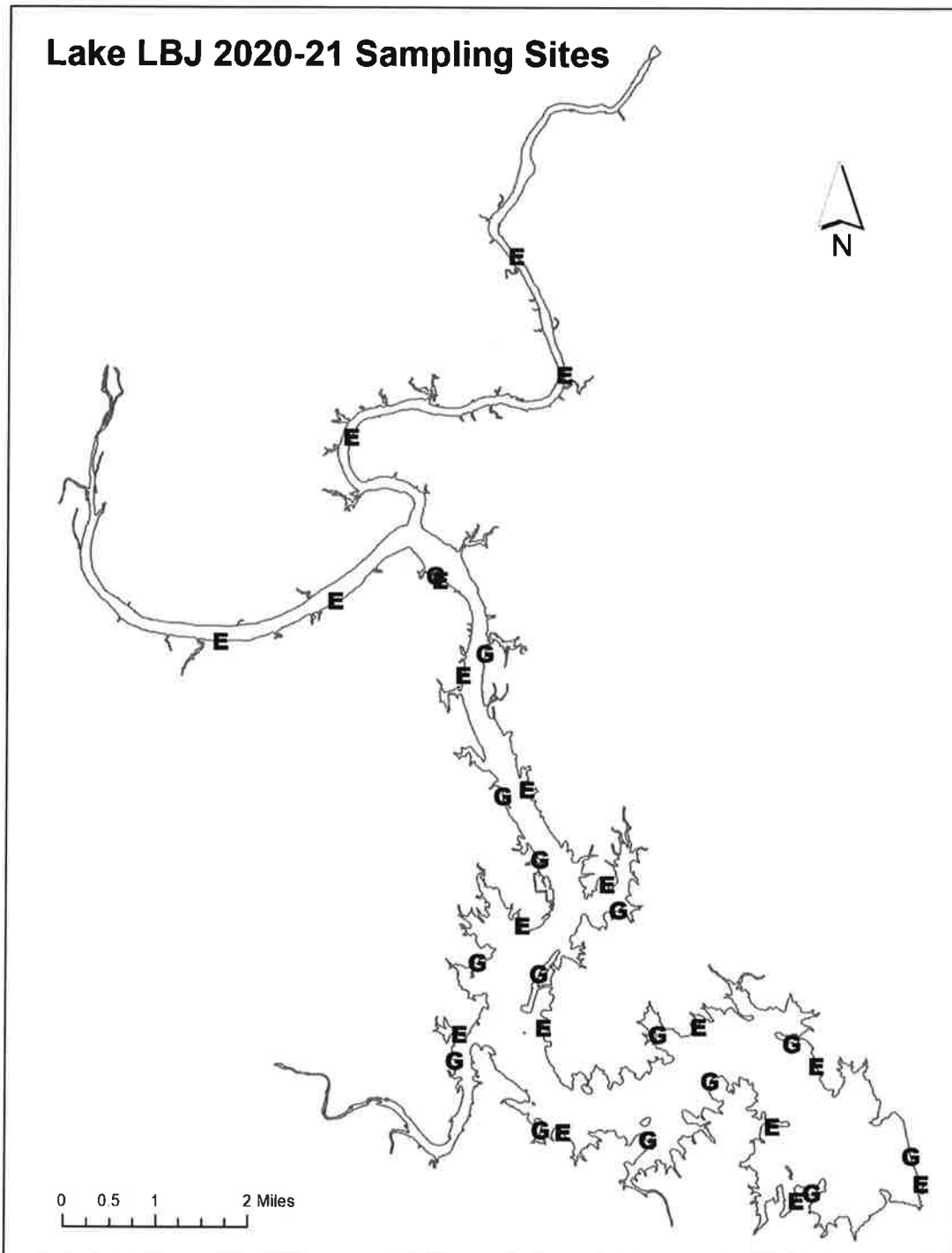
Year	Sample size	Number of fish			% FLMB alleles	% FLMB
		FLMB	Intergrade	NLMB		
2006	30	1	29	0	61.0	3.3
2008	30	0	30	0	58.0	0.0
2012	29	1	28	0	66.0	3.4
2016	30	1	29	0	58.0	3.3

Proposed Sampling Schedule

Table 9. Proposed sampling schedule for LBJ Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall.

	Survey year			
	2021-2022	2022-2023	2023-2024	2024-2025
Angler Access				X
Structural Habitat				X
Vegetation	X	X	X	X
Electrofishing – Fall		X		X
Electrofishing – Spring				
Electrofishing – Low frequency				
Trap netting				
Gill netting				X
Baited tandem hoop netting				
Creel survey				
Report				X

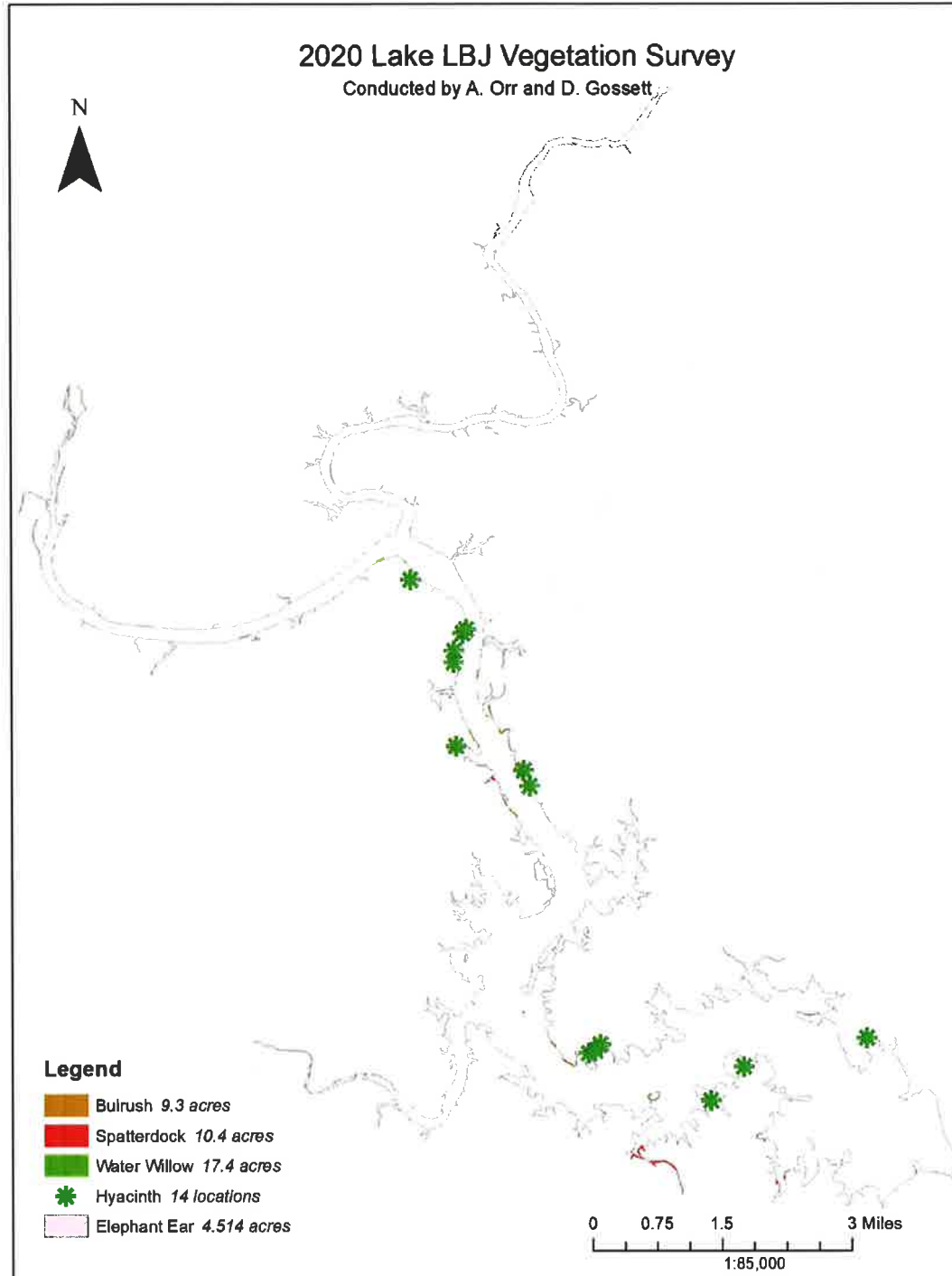
APPENDIX A – Map of sampling locations



Location of sampling sites, LBJ Reservoir, Texas, 2020-2021. Gill net and electrofishing stations are indicated by G and E, respectively.

APPENDIX B – Aquatic vegetation map

Aquatic vegetation survey coverage map for LBJ Reservoir, Texas, August 2020.



APPENDIX C – Catch rates for all species from all gear types

Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from all gear types from LBJ Reservoir, Texas, 2020-2021. Sampling effort was 15 net nights for gill netting and 1.5 hours for electrofishing.

Species	Gill Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard Shad			248	165.3 (24)
Threadfin Shad			76	50.7 (38)
Inland Silverside			16	10.7 (62)
Blacktail Shiner			4	2.7 (100)
Smallmouth Buffalo	2	0.1 (68)		
Blue Catfish	17	1.1 (33)		
Channel Catfish	129	8.6 (13)		
Flathead Catfish	23	1.5 (25)		
White Bass	38	2.5 (20)		
Redbreast Sunfish			176	117.3 (27)
Green Sunfish			1	0.7 (100)
Bluegill			341	227.3 (15)
Longear Sunfish			18	12.0 (27)
Redear Sunfish			64	42.7 (18)
Largemouth Bass			124	82.7 (23)
Guadalupe Bass			12	8.0 (38)
White Crappie	20	1.3 (31)		
Black Crappie	1	<0.1 (100)		
Log Perch			1	0.7 (100)
Tilapia			6	4.0 (73)

APPENDIX D – Catch statistics for Texas Tournament Zone

Year	Mean bag weight (lbs)	Mean fish weight (lbs)	Total bag weight (lbs)	Biggest fish (lbs)	Number Fish caught by top 25 teams
2021	13.7	3.1	343.4	9.4	112
2020	13.2	2.7	328.9	8.2	120
2019	N/A	N/A	N/A	N/A	N/A
2018	17.7	3.7	443.1	9.1	121
2017	20.7	4.1	517.4	10.6	125
2016	14.4	3.0	360.4	7.5	122
2015	16.7	3.5	418.7	10.1	121
2014	14.7	3.2	366.6	8.6	113
2013	N/A	N/A	N/A	N/A	N/A
2012	13.4	2.7	335.1	9.9	122



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ATTACHMENT TCF-TECH-8

Existing Entrainment Studies

The Thomas C. Ferguson (TCF) Power Plant is a combined-cycle natural gas plant located in Horseshoe Bay, Texas. The plant is situated on a peninsula on the south shore of Lake Lyndon B. Johnson. Lake Lyndon B. Johnson, commonly known as Lake LBJ, is a 6,502-acre impoundment of the Colorado River located in Llano and Burnet Counties. The lake was constructed in 1951 by the LCRA for industrial (power plant cooling), hydro-electric power generation, and recreation. The plant recirculates the cooling water by withdrawing water from Lake LBJ and then discharging the water back into the lake.

Entrainment performance studies have not been performed at TCF. To find other entrainment studies that might be representative of TCF's operation, LCRA performed an internet search for publicly available studies. Searches included:

- Environmental Protection Agency (EPA) docket related to the 316(b) rule;
- Electric Power Research Institute (EPRI) website;
- Nuclear Regulatory Commission (NRC) website; and
- general internet search

Other studies considered included:

- Desalination Plant Intakes: Impingement and Entrainment Impacts and Solutions (WaterReuse Association Desalination Committee, 2011)
- Entrainment Survival: Status of Technical Issues and Role in Best Technology Available (BTA) Selection (EPRI, 2009)
- Impingement and Entrainment Survival Studies: Technical Support Document (EPRI, 2005)
- Review of Entrainment Survival Studies: 1970-2000 (EPRI, 2000)
- Entrainment-related studies available on the Nuclear Regulatory Commission website

Although the above studies provide some relevant information, the following two studies were identified as having greater relevance to TCF operations because they examine the impacts that Texas electric generating facilities with recirculating cooling water systems with reservoirs have on fish and aquatic life.

Entrainment Studies

Study Title: *Evaluating Fish Impingement and Entrainment at the Comanche Peak Steam Electric Station (Bauml, George A., Thesis for the Degree of Master of Science, 1996).*

Relevance: This study was identified as having relevance to the TCF facility because it was performed at a steam electric generating facility located in Texas that utilizes a fresh-water cooling water impoundment that recirculates cooling water. The study examined fish communities that have similarities to the existing fish communities in Lake LBJ. The Texas Parks and Wildlife Department's 2020 Fisheries Management Survey Report describes the fish community in Lake LBJ as including blue gill, gizzard shad, and redbreast sunfish as the predominant prey species, with threadfin shad and redear sunfish as also available. Channel catfish is the predominate catfish species. Largemouth bass was moderate in abundance. The results of the study provide information regarding how fish communities may be affected by a steam electric generating facility that uses a closed cycle recirculating system.

The definition of entrainment (40 CFR § 125.92(h)) “means any life stages of fish and shellfish in the intake water flow entering and passing through a cooling water intake structure and into a cooling water system, including the condenser or heat exchanger.” The following study took sampling data from in front of the intake structures and assumed 100% mortality of entrained ichthyoplankton and maximum intake operation at the plant. The data should be interpreted as providing the worst-case scenario for impacts to ichthyoplankton that are entrained, i.e. pass through the intake structure and into the cooling water system.

Study Summary: The following summary is quoted directly from the document.

“This study was designed to determine if impingement and entrainment by cooling water intake at the Comanche Peak Steam Electric Station have an adverse impact upon the Squaw Creek Reservoir fish population. The yearly impingement of fish was estimated to be 262,994 of 14 species. The threadfin shad (*Dorosoma petenense*) accounted for 96% of this total. Entrainment of eggs and larvae for a five month period was estimated to be 15,989,987 and 42,448,794 respectively. Two fish population studies were performed on Squaw Creek Reservoir to help assess impact. It was determined that the losses due to impingement and entrainment have no adverse impact upon the fish population of Squaw Creek Reservoir.”

Study Description (as it pertains to entrainment):

The objective of the entrainment study was to determine potential impacts to the reservoir’s fish populations by identifying what organisms were being entrained, the specifics involved, and to estimate the loss of eggs, larva, and juveniles.

As described in the study, Squaw Creek Reservoir (SCR) is a 3,272-acre impoundment located on Squaw Creek in Hood and Somervell Counties, Texas. The reservoir was created in 1977 to serve as a cooling reservoir for the Comanche Peak Steam Electric Station (CPSES), which is a two-unit power plant with a net rating of 2,300 Megawatts (MW). Secondary water uses of the reservoir include recreational fishing. The study identified major predator species of fish as largemouth bass, smallmouth bass, white bass, white crappie, and channel catfish. The major forage species included threadfin shad, bluegill sunfish, gizzard shad, and inland silversides.

The entrainment study included weekly sampling from April 1994 to August 1994. The entrainment data was collected by sampling in front of the trash rakes in front of the intake structures. The percent composition of ichthyoplankton collection by genus was determined for eggs, larvae, and juveniles. A simple population modeling approach was used to estimate the potential impact on fish populations. The model converts the number of ichthyoplankton entrained into the number of adult fish that would have been produced had the ichthyoplankton not been entrained. Approximately 29.7 million eggs, 44.4 million larva, and 1.3 million juveniles that represented six genera were estimated to be entrained during the study period. As described in the study, the model estimated that the adult loss as a result of the eggs, larva, and juveniles entrained ranged from 22 adults for largemouth bass to 150,000 adults for threadfin shad. See Table 1 for the model results for estimated adult loss.

Estimated Adult Loss Model Results

Species	Number Entrained	Lifetime Fecundity	Survival Egg to Larv	Larv From One Female	Survival Larv to Adult	Number of Adults Lost
FWD (Eggs)	5,610,864	1,800,000	0.005	6,500	0.00031	2
FWD (Larv)	4,586,465	1,800,000	0.005	6,500	0.00031	1,412
ISS (Eggs)	922,635	95,000	0.005	475	0.00421	2
ISS (Larv)	730,549	95,000	0.005	475	0.00421	3,287
TFShad	3,586,877	9,550	0.005	48	0.04188	150,236
GZShad	3,586,877	1,680,000	0.005	7,800	0.00026	920
WBass	5,365,234	3,390,000	0.005	16,950	0.00012	633
LMBass	4,437,467	550,000	0.750	412,500	0.00000	22
WCrapple	12,782,933	462,000	0.750	346,650	0.00001	74
BGSunfish	14,834,933	97,000	0.750	72,750	0.00003	409

Table 1. The results of the equivalent adult loss model and the numbers used in the calculation of these results.

The impingement and entrainment estimates were then evaluated according to the species' ability to compensate for its losses. For example, the study notes that the gizzard shad likely accounts for the large percentage of the 7 million *Dorosoma* genus larva entrained. Although losses are large, the conclusion remains that there is not a significant impact because the fish are a forage species with low survival rates even as adults. In addition, the species is adapted to compensating for enormous losses by maintaining their populations.

Conclusion: The following conclusion is quoted directly from the document.

"The overall conclusion of this thesis is that losses due to impingement and entrainment at the CPSES intake structure are not sufficient to cause adverse impact to the fish community in SCR."

The Comanche Peak study can be viewed in its entirety at the following internet location:

https://digital.library.unt.edu/ark:/67531/metadc278497/m2/1/high_res_d/1002656817-bauml.pdf

Study Title: *Aquatic Ecology-Main Cooling Reservoir and Circulating Water Intake Structure Study Unit 3 and 4 Licensing Project (ENSR, Corporation, August 2008, Prepared for STP Nuclear Operating Company, Wadsworth, Texas).*

Relevance: This study was identified as having relevance to the TCF facility because it was performed at a steam electric generating facility located in the Colorado River basin in Texas that utilizes a cooling water impoundment that recirculates cooling water. The fish and aquatic life in the reservoir is heavily influenced by estuarine species due to the proximity of the South Texas Project (STP) to the Texas coast. The results of the study are relevant regarding how fish communities, whether fresh-water or estuarine, are affected by a steam generating facility that uses a closed cycle recirculating system. In terms of the definition of entrainment, samples were collected in front of the intake structure during the

entrainment part of the study. The data can be interpreted to assume that the organisms collected in the study would have been entrained in the cooling water system (would have passed through the cooling water intake structure into the cooling water system).

Summary: The following summary is quoted directly from the study document.

“This report summarizes the results of ENSR's aquatic assessment of the Main Cooling Reservoir (MCR) and the Circulating Water Intake Structure (CWIS) for the circulating water system for Units 1 and 2. The study was conducted in conjunction with the STP Nuclear Operating Company's Unit 3 and Unit 4 Combined Operating License (COL) application development for the proposed expansion project located proximal to Units 1 and 2 at the South Texas Project Electric Generating Station (STPEGS) in Matagorda County, Texas. From May 2007 to April 2008, biological samples were collected from the MCR and the CWIS at the STPEGS facility. The objective of the aquatic assessment was to collect current data over a one-year period to characterize the aquatic species within the MCR, and to evaluate impingement and entrainment impacts to establish, to the extent possible, relationships between the presence of aquatic organisms and the current STPEGS intake design and operating parameters.”

Study Description (as it pertains to entrainment):

As described in the study, the STPEGS facility utilizes an approximately 7,000-acre reservoir called the Main Cooling Reservoir (MCR) to provide closed-cycle cooling water for up to four generating units, which produce approximately 2,700 MW. During the study period, two generating units were operational.

The study assessed the aquatic species of the MCR and the CWIS. For the MCR part of the study, the samples were collected over four quarterly sampling periods through one year using gill nets, trawls, beach seines, and plankton nets. The sampling occurred at fixed stations located in stratified areas of the reservoir. The objective was to characterize the aquatic species in the reservoir. For the CWIS part of the study, the study was designed to determine if daily or seasonal patterns were affected by the operation of the circulating water pump and intake screens. For the CWIS part of the study related to entrainment, samples were collected from behind the trash bars using plankton nets during the time period from May 2007 to April 2008. Samples were collected four times during a 24-hour period.

Data collected during the study show high numbers of certain aquatic organisms while the number of different species was low to marginal. Healthy populations of threadfin shad, silversides, blue catfish, common carp, ladyfish and Atlantic croaker were identified in the reservoir.

The data from the CWIS part of the study show that a low number of fish species were entrained (<1%) at the circulating water intake structure. A total of 207,696 organisms were entrained, which represented 9 different fish families and 12 different classes of invertebrates. See Table 10 below for the species collected. The mud crab comprised 67% of the organisms entrained while ichthyoplankton species comprised less than 1% of the total composition of entrained organisms. The mud crab species is common on the Texas coast and is known to occur in estuarine and freshwater rivers and reservoir systems. Entrainment rates were highest during the spring months.

Table 10. Species collected during entrainment sampling in the MCR Circulating Water Intake Structure, 2007-2008.

Common Name	Scientific Name	Total
Finfish		
Anchovy	<i>Engraulid</i> sp.	30
Clupeid	<i>Clupeid</i> sp	544
Gobies	<i>Gobi</i> spp.	61
Naked goby	<i>Gobiosoma bosc</i>	5
Silversides	<i>Atheriniformes</i> spp.	2
Silversides	<i>Atheriniformes</i> spp.	169
Silversides	<i>Atheriniformes</i> spp.	30
Fish egg	Fish egg	103
Needlefish	<i>Beloniformes</i> spp.	3
Flying fish (eggs)	<i>Exocoetidae</i> sp. (eggs)	307
Egg Complex	<i>Carangidae-Labridae-Sciaenidae</i>	8
Perch-like fish	<i>Perciformes</i>	6
Wrasse fishes	<i>Labridae</i> sp.	3
	Subtotal	1,271
Invertebrates		
Amphipod	<i>Amphipod</i> spp.	141
Amphipod	<i>Cerapus</i> sp.	4
Brachyuran decapod	<i>Brachyura</i> sp. (zoea)	353
Fish Lice	<i>Branchiura</i> spp.	399
Cladoceran	<i>Cladocera</i> spp.	800
Copepod	<i>Copepoda</i> spp.	6,588
Decapoda	<i>Rhithropanopeus harrisi</i>	140,192
Decapoda	<i>Panopeidae</i> sp.	10,798
Decapoda Zoea	<i>Decapoda</i>	31,919
Harpacticoid copepod	<i>Copepoda</i>	12,212
Insect sp.	<i>Insecta</i>	24
Tongue biters	<i>Isopoda</i>	16
Mollusk	<i>Bivalvia</i> sp.	1
Mysid shrimp	<i>Mysida</i> sp.	2,660
Midge (sp.1)	<i>Diptera</i>	32
Mites/Ticks	<i>Acari</i>	12
Midge	<i>Chironomidae</i> sp.	78
Polychaete	<i>Nereis</i> sp.	4
Seed Shrimp	<i>Ostracoda</i>	78
Shrimp	<i>Caridea</i>	1
Unidentified		113
	Subtotal	206,425
	Total	207,696

Conclusion: The following conclusion is quoted directly from the document.

"Based on data collected from this combined study it is evident that MCR supports a very diverse aquatic system both for fishes and macroinvertebrates. Although the reservoir functions as a cooling water system, the day-to-day withdrawal of water through the CWIS and resultant influx of heated discharge water does not appear to have a negative impact on the fish and macroinvertebrate communities living in the MCR."

The STP study can be viewed in its entirety at the following internet location:

<https://www.nrc.gov/docs/ML0908/ML090860875.pdf>

(Study begins on page 48 of the document.)

Leah Whallon

From: Julie Podbielski <Julie.Podbielski@LCRA.ORG>
Sent: Friday, August 23, 2024 12:58 PM
To: Leah Whallon
Cc: Bill Steinhauser
Subject: RE: Application to Renew Permit No. WQ0001369000; Lower Colorado River Authority; Thomas C. Ferguson Power Plant
Attachments: TCF_Industrial Discharge Renewal Spanish NORI.docx
Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Whallon,

Thank you for your email on August 9, 2024 with the Notice of Deficiency letter. Please see the following responses.

- Item 1: In an email on August 22, 2024, you stated that the facility needed to only provide a public viewing location in Llano County.
- Item 2: LCRA reviewed the NORI. In the first sentence, "n/a" needs to be deleted.
- Item 3: The portion of the NORI unique to this application has been translated in Spanish and is attached as a Microsoft Word document.

Please contact me if you have further questions.

Thank you, Julie

Julie Podbielski
Lower Colorado River Authority | Environmental Advisor
📞 512-730-5633 📠 512-461-4294
Julie.Podbielski@lcra.org

Comisión de Calidad Ambiental del Estado de Texas



AVISO DE RECIBO DE LA SOLICITUD Y EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA RENOVACION

PERMISO NO. WQ0001369000

SOLICITUD. La Lower Colorado River Authority, P.O. Box 220, Austin, Texas 78767 ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0001369000 (EPA I.D. No. TX0057576) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 435,000,000 galones por día. La planta está ubicada 2001 Ferguson Road, cerca de la ciudad de Horseshoe Bay, en el Condado de Llano, Texas. La ruta de descarga es del sitio de la planta al Lago Lyndon B. Johnson. La TCEQ recibió esta solicitud el 30 de julio de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en Biblioteca del Condado de Llano, 102 East Haynie Street, Condado de Llano, Texas antes de la fecha de publicación de este aviso en el periódico. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.371388,30.5575&level=18>

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la

solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO

CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del

agua que se hayan presentado durante el período de comentarios. . *[For renewal applications that **do not** include a major amendment, include the following sentence:]* **Si ciertos criterios se cumplen, la TCEQ puede actuar sobre una solicitud para renovar un permiso sin proveer una oportunidad de una audiencia administrativa de lo contencioso.**

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado específico. Si desea que se agregue su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía <http://www14.tceq.texas.gov/epic/eComment/> o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional de la Lower Colorado River Authority a la dirección indicada arriba o llamando a Ms. Wendy Schreiber, Gerente, Apoyo Medioambiental de las Plantas al 512-767-3560.

Fecha de emission _____