



Administrative Package Cover Page

This file contains the following documents:

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



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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by [Title 30, Texas Administrative Code \(30 TAC\), Chapter 39, Subchapter H](#). Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

City of Tyler (CN600335657) operates Westside Plant (RN101611150), a Wastewater treatment facility. The facility is located at 14939 COUNTY ROAD 46, in Tyler, Smith County, Texas 75704. This permit renewal applies for a design flow discharge of 13 MGD with a 2-hour peak flow of 32.5 MGD of treated domestic wastewater and the minor amendment covers the use of anaerobic digesters as sludge holding tanks..

Discharges from the facility are expected to contain free available chlorine, total residual chlorine, total suspended solids, oil and grease, and pH. Additional potential pollutants are included in the Domestic Wastewater Permit Application Technical Report 1.0, Worksheet 4.0. Domestic wastewater and industrial discharge are routed to the Westside WWTP, TPDES Permit No. WQ0010372001 is treated by headworks with mechanical screening and grit removal, followed by a raw sewage pump station, primary clarifiers, first-stage trickling filters, nitrification basins, and second-stage trickling filters. Flow is then clarified,

disinfected in a chlorine contact basin, and discharged to Black Fork Creek. Sludge is dewatered by belt filter presses and hauled to a local landfill.

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí /AGUAS PLUVIALES

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

City of Tyler (CN600335657) opera la Planta Westside (RN101611150), una instalación de tratamiento de aguas residuales. La instalación está ubicada en 14939 County Road 46, en Tyler, Condado de Smith, Texas 75704. Esta renovación de permiso se aplica para una descarga de flujo de 13 MGD con un flujo máximo de dos horas de 32.5 MGD de aguas residuales domesticas tratadas, y la enmienda menor cubre el uso de digestores anaeróbicos como tanques de almacenamiento de lodos.

Se espera que las descargas de la instalación contengan cloro disponible, cloro residual total, solidos suspendidos totales, aceite y grasas, y pH. Una lista de contaminantes potenciales adicionales está incluida en el Informe Técnico 1.0, Hoja de Trabajo 4.0. La descarga de aguas residuales domesticas e industriales se dirigen a la planta de tratamiento de aguas residuales Westside bajo el permiso numero WQ0010372001 de TPDES, . está tratado por obras de cabecera con cribado mecanico y eliminación de arena, seguidas de una estación de bombeo de aguas residuales sin tratar, clarificadores primarios, filtros percoladores de primera etapa, cuencas de nitrificación y filtros percoladores de segunda etapa. El flujo luego se clarifica, se desinfecta en una cuenca de contacto con cloro y se descarga en Black Fork Creek. Los lodos se deshidratan mediante prensas de filtros de banda y se transportan a un vertedero local .

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose “operates” in this section for existing facility applications or choose “proposes to operate” for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose “is” for an existing facility or “will be” for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

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.

Example

Individual Industrial Wastewater Application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas-fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside 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, metal-cleaning waste, and stormwater (from diked oil storage area yards and storm drains)) via Outfall 001. Low-volume waste sources, metal-cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low-volume waste and metal-cleaning waste via Outfall 101 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: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility’s potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

PERMIT NO. WQ0010653001

APPLICATION. City of Tyler, P.O. Box 2039, Tyler, Texas 75710, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010653001 (EPA I.D. No. TX0047996) to authorize the discharge of treated wastewater at a volume not to exceed an annual average flow of 13,000,000 gallons per day. The domestic wastewater treatment facility is located at 14939 County Road 46, in the city of Tyler, in Smith County, Texas 75704. The discharge route is from the plant site to Black Fork Creek; thence to Prairie Creek; thence to Neches River Above Lake Palestine. TCEQ received this application on August 23, 2024. The permit application will be available for viewing and copying at Tyler City Hall, public notice board, 212 North Bonner Avenue, Tyler, in Smith 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=-95.411388,32.397777&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 City of Tyler at the address stated above or by calling Mr. Mike Norris, Manager Wastewater Treatment Systems, at 903-939-8278.

Issuance Date: September 13, 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. WQ0010653001

SOLICITUD. City of Tyler, P.O. Box 2039, Tyler, Texas 75710 ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0010653001 (EPA I.D. No. TX0047996) 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 13,000,000 galones por día. La planta está ubicada en 14939 County Road 46 en la Ciudad de Tyler en el Condado de Smith, Texas 75704. La ruta de descarga es del sitio de la planta hacia el Arroyo Black Fork, después hacia el Arroyo Prairie, y finalmente el Rio Neches por ensima del Lago Palestine. La TCEQ recibió esta solicitud el 23 de Agosto de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en el Ayuntamiento de la Ciudad de Tyler en el tablón de anuncios publico que se encuentra en 212 North Bonner Avenue, Tyler, en el Condado de Smith, 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=-95.411388,32.397777&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 por qué 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. 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 más de las listas de 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 del la ciudad de Tyler a la dirección indicada arriba o llamando a Sr Mike Norris, Gérante de Sistemas de Tratamiento de Agua Residuales, al 903-939-8278.

Fecha de emission: 13 de septiembre de 2024

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 23, 2024

Dear Applicant:

Re: Confirmation of Submission of the Minor Amendment with Renewal for Public Domestic Wastewater Authorization.

This is an acknowledgement that you have successfully completed Minor Amendment with Renewal for the Public Domestic Wastewater authorization.

ER Account Number: ER105407
Application Reference Number: 675367
Authorization Number: WQ0010653001
Site Name: Westside WWTP
Regulated Entity: RN101611150 - Westside Plant
Customer(s): CN600335657 - City of Tyler

Please be aware that TCEQ staff may contact your designated contact for any additional information.

If you have any questions, you may contact the Applications Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by telephone at (512) 239-4671.

Sincerely,
Applications Review and Processing Team
Water Quality Division

Texas Commission on Environmental Quality

Update Domestic or Industrial Individual Permit

WQ0010653001

Site Information (Regulated Entity)

What is the name of the site to be authorized?	WESTSIDE WWTP
Does the site have a physical address?	Yes
Physical Address	
Number and Street	14939 COUNTY ROAD 46
City	TYLER
State	TX
ZIP	75704
County	SMITH
Latitude (N) (##.#####)	32.397777
Longitude (W) (-###.#####)	-95.411388
Primary SIC Code	4952
Secondary SIC Code	
Primary NAICS Code	221320
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	RN101611150
What is the name of the Regulated Entity (RE)?	WESTSIDE PLANT
Does the RE site have a physical address?	Yes
Physical Address	
Number and Street	14939 COUNTY ROAD 46
City	TYLER
State	TX
ZIP	75704
County	SMITH
Latitude (N) (##.#####)	32.39722
Longitude (W) (-###.#####)	-95.41139
Facility NAICS Code	
What is the primary business of this entity?	DOMESTIC

City of-Customer (Applicant) Information (Owner Operator)

How is this applicant associated with this site?	Owner Operator
What is the applicant's Customer Number (CN)?	CN600335657
Type of Customer	City Government
Full legal name of the applicant:	
Legal Name	City of Tyler
Texas SOS Filing Number	
Federal Tax ID	
State Franchise Tax ID	
State Sales Tax ID	
Local Tax ID	

DUNS Number	
Number of Employees	251-500
Independently Owned and Operated?	
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	City of Tyler
Prefix	
First	Mike
Middle	
Last	Norris
Suffix	
Credentials	
Title	Manager Wastewater Treatment System
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 2039
Routing (such as Mail Code, Dept., or Attn:)	
City	TYLER
State	TX
ZIP	75710
Phone (###-###-####)	9035391117
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	mnorris@tylertexas.com

Billing Contact

Responsible contact for receiving billing statements:	
Select the permittee that is responsible for payment of the annual fee.	CN600335657, City of Tyler
Organization Name	City of Tyler
Prefix	
First	Mike
Middle	
Last	Norris
Suffix	
Credentials	
Title	Manager Wastewater Treatment System
Enter new address or copy one from list:	
Mailing Address	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 2039
Routing (such as Mail Code, Dept., or Attn:)	
City	TYLER
State	TX
ZIP	75710

Phone (###-###-####)

9035391117

Extension

Alternate Phone (###-###-####)

Fax (###-###-####)

E-mail

mnorris@tylertexas.com

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?

Billing Contact

Organization Name

City of Tyler

Prefix

First

Mike

Middle

Last

Norris

Suffix

Credentials

Title

Manager Wastewater Treatment System

Enter new address or copy one from list:

Mailing Address

Address Type

Domestic

Mailing Address (include Suite or Bldg. here, if applicable)

PO BOX 2039

Routing (such as Mail Code, Dept., or Attn:)

City

TYLER

State

TX

ZIP

75710

Phone (###-###-####)

9035391117

Extension

Alternate Phone (###-###-####)

Fax (###-###-####)

E-mail

mnorris@tylertexas.com

Technical Contact

Person TCEQ should contact for questions about this application:

Same as another contact?

Organization Name

CITY OF TYLER

Prefix

MISS

First

Sarah

Middle

Last

Elkins

Suffix

Credentials

Title

Pretreatment Coordinator

Enter new address or copy one from list:

Mailing Address

Address Type

Domestic

Mailing Address (include Suite or Bldg. here, if applicable)

PO BOX 2039

Routing (such as Mail Code, Dept., or Attn:)

City

TYLER

State

TX

ZIP

75710

Phone (###-###-####)

9035957286

Extension

Alternate Phone (###-###-####)

Fax (###-###-####)

E-mail

selkins@tylertexas.com

DMR Contact

Person responsible for submitting Discharge Monitoring Report Forms:

Same as another contact?

Organization Name

City of Tyler

Prefix

First

Ryan

Middle

Last

Peden

Suffix

Credentials

Title

Chief Operator

Enter new address or copy one from list:

Mailing Address:

Address Type

Domestic

Mailing Address (include Suite or Bldg. here, if applicable)

PO BOX 2039

Routing (such as Mail Code, Dept., or Attn:)

City

TYLER

State

TX

ZIP

75710

Phone (###-###-####)

9035925391

Extension

Alternate Phone (###-###-####)

Fax (###-###-####)

E-mail

rpeden@tylertexas.com

Section 1# Permit Contact

Permit Contact#: 1

Person TCEQ should contact throughout the permit term.

1) Same as another contact?

Billing Contact

2) Organization Name

City of Tyler

3) Prefix

4) First

Mike

5) Middle

6) Last

Norris

7) Suffix

8) Credentials

9) Title Manager Wastewater Treatment System

Mailing Address

10) Enter new address or copy one from list

11) Address Type Domestic

11.1) Mailing Address (include Suite or Bldg. here, if applicable) PO BOX 2039

11.2) Routing (such as Mail Code, Dept., or Attn:)

11.3) City TYLER

11.4) State TX

11.5) ZIP 75710

12) Phone (###-###-####) 9035391117

13) Extension

14) Alternate Phone (###-###-####)

15) Fax (###-###-####)

16) E-mail mnorris@tylertexas.com

Owner Information

Owner of Treatment Facility

1) Prefix

2) First and Last Name Heather Nick

3) Organization Name City of Tyler

4) Mailing Address 423 W. Ferguson Tyler, TX 75702

5) City Tyler

6) State TX

7) Zip Code 75702

8) Phone (###-###-####) 9035311175

9) Extension

10) Email hnick@tylertexas.com

11) What is ownership of the treatment facility? Public

Owner of Land (where treatment facility is or will be)

12) Prefix

13) First and Last Name

14) Organization Name City of Tyler

15) Mailing Address 423 W. Ferguson Tyler, TX 75702

16) City Tyler

17) State TX

18) Zip Code 75702

19) Phone (###-###-####) 9035311175

20) Extension

21) Email hnick@tylertexas.com

22) Is the landowner the same person as the facility owner or co-applicant? Yes

General Information Renewal-Amendment

1) Current authorization expiration date: 02/21/2025

2) Current Facility operational status: Active

3) Is the facility located on or does the treated effluent cross American Indian Land? No

4) What is the application type that you are seeking?	Minor Amendment with Renewal
4.1) Describe the proposed changes:	This permit renewal applies for a design flow discharge of 13 MGD with a 2-hour peak flow of 32.5 MGD of treated domestic wastewater and the minor amendment covers the use of anaerobic digesters as sludge holding tanks.
5) Current Authorization type:	Public Domestic Wastewater
5.1) What is the proposed total flow in MGD discharged at the facility?	13
5.2) Select the applicable fee	>= 1.0 MGD - Renewal - \$2,015
6) What is the classification for your authorization?	TPDES
6.1) What is the EPA Identification Number?	TX0047996
6.2) Is the wastewater treatment facility location in the existing permit accurate?	Yes
6.3) Are the point(s) of discharge and the discharge route(s) in the existing permit correct?	Yes
6.4) City nearest the outfall(s):	Tyler
6.5) County where the outfalls are located:	SMITH
6.6) Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?	No
6.7) Is the daily average discharge at your facility of 5 MGD or more?	Yes
6.7.1) Provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge:	ANDERSON ANGELINA CHEROKEE HOUSTON POLK SMITH TRINITY TYLER HENDERSON
7) Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?	No

Public Notice Information

Individual Publishing the Notices

1) Prefix	
2) First and Last Name	Mike Norris
3) Credential	
4) Title	Manager Wastewater Treatment System
5) Organization Name	City of Tyler
6) Mailing Address	PO BOX 2039
7) Address Line 2	
8) City	TYLER
9) State	TX
10) Zip Code	75710
11) Phone (###-###-####)	9035391117
12) Extension	
13) Fax (###-###-####)	
14) Email	mnorris@tylertexas.com

Contact person to be listed in the Notices

15) Prefix	
16) First and Last Name	Edward Broussard
17) Credential	
18) Title	City Manager
19) Organization Name	City of Tyler
20) Phone (###-###-####)	9035311250

21) Fax (###-###-####)

22) Email

ebroussard@tylertexas.com

Bilingual Notice Requirements

23) 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

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

Yes

23.2) Do the students at these schools attend a bilingual education program at another location?

No

23.3) 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)?

No

23.4) Which language is required by the bilingual program?

Spanish

Section 1# Public Viewing Information

County#: 1

1) County

SMITH

2) Public building name

City Hall

3) Location within the building

Public Notice Board

4) Physical Address of Building

212 N Bonner Ave, Tyler, TX 75702

5) City

Tyler

6) Contact Name

7) Phone (###-###-####)

9035311250

8) Extension

9) Is the location open to the public?

Yes

Plain Language

1) Plain Language

[File Properties]

File Name

LANG_Form 20972.pdf

Hash

844088FF3130F37F117915078C18A3B3B0BCDC5D20302EF0DF40993FA0E724BB

MIME-Type

application/pdf

Supplemental Permit Information Form

1) Supplemental Permit Information Form (SPIF)

[File Properties]

File Name

SPIF_Form 20971.pdf

Hash

3172F28EB315134CD852546E249FB8C54BD22282EF476A4912BC04E93C4AD88B

MIME-Type

application/pdf

Domestic Attachments

1) Attach an 8.5"x11", reproduced portion of the most current and original USGS Topographic Quadrangle Map(s) that meets the 1:24,000 scale.

[File Properties]

File Name	MAP_Westside WWTP USGS Map.pdf
Hash	6D1FFD487D166917769EB335FB8F1E3EAF2DCD4D63513EA751F003244014192B
MIME-Type	application/pdf
2) I confirm that all required sections of Technical Report 1.0 are complete and will be included in the Technical Attachment.	
	Yes
2.1) Are you planning to include Worksheet 2.1 (Stream Physical Characteristics) in the Technical Attachment?	
	No
2.2) Are you planning to include Worksheet 4.0 (Pollutant Analyses Requirements) in the Technical Attachment?	
	Yes
2.3) Are you planning to include Worksheet 5.0 (Toxicity Testing Requirements) in the Technical Attachment?	
	Yes
2.4) I confirm that Worksheet 6.0 (Industrial Waste Contribution) is complete and included in the Technical Attachment.	
	Yes
2.5) Are you planning to include Worksheet 7.0 (Class V Injection Well Inventory/Authorization Form) in the Technical Attachment?	
	No
2.6) Technical Attachment	
[File Properties]	
File Name	TECH_Permit Renewal and Minor Amendment Application_1a.pdf
Hash	DC309CFB4F516A261EE765FF8E758A427593282DA7551A000A0484FD336C3557
MIME-Type	application/pdf
[File Properties]	
File Name	TECH_Permit Renewal and Minor Amendment Application_1b.pdf
Hash	70152A9688524B7D0A6DC12457145A9EAEAF647EFD762DC7C3D6DA00CDC555AF
MIME-Type	application/pdf
[File Properties]	
File Name	TECH_Permit Renewal and Minor Amendment Application_2.pdf
Hash	6C9566F86256DE0D0C7710B083D9E5E3F7DC5816C66C96EDC16F5F78CDD74C8F
MIME-Type	application/pdf
[File Properties]	
File Name	TECH_Permit Renewal and Minor Amendment Application_3.pdf
Hash	4B034633F9B44CFFFE4DCC7518149C249A0F777B1107D68F0D99B77F1AFB9C4C
MIME-Type	application/pdf
3) Buffer Zone Map	
[File Properties]	
File Name	BUFF_ZM_Buffer Zone Map.pdf
Hash	DC653F706C2DD41F01AC5D6AB88743B30EF40038F50F5A7A4D75F477D47B231A
MIME-Type	application/pdf
4) Flow Diagram	
[File Properties]	
File Name	FLDIA_Attachment c_Process Flow Diagram.pdf
Hash	A59D29B05721A50E6802F1E4DF42BFD6330D8B45EC766BD8AE744BB062397268
MIME-Type	application/pdf

5) Site Drawing

[File Properties]

File Name SITEDR_Attachment A_Site Drawing.pdf
Hash DEC83E891B3D208C4F26D6901379B311A329E9BF54A6E7F4B8BE3A9D7A18A02
MIME-Type application/pdf

6) Design Calculations

[File Properties]

File Name DES_CAL_Design Calculations.pdf
Hash 1AB457E9E680458D2B19D0AB66172B0ABCB95CC3986275B57718A12D4A3D890B
MIME-Type application/pdf

7) Solids Management Plan

8) Water Balance

[File Properties]

File Name WB_Water Balance.pdf
Hash D208DE86C4854E516FEB6E1A8324B0286CBF2A3F0E0DE8CD0458F810662A1C4F
MIME-Type application/pdf

9) Other Attachments

Certification

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

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

1. I am Michael A Norris, the owner of the STEERS account ER010631.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Update Domestic or Industrial Individual Permit WQ0010653001.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER OPERATOR Signature: Michael A Norris OWNER OPERATOR

Customer Number: CN600335657
Legal Name: City of Tyler
Account Number: ER010631
Signature IP Address: 66.76.24.34
Signature Date: 2024-08-23
Signature Hash: 251B0B11828EF5A2099DB5B7DC5CD9AE5FA5A47FB07895F3B90300CEC1E0E63E
Form Hash Code at time of Signature: B5D3657307643A0E7B1E7A7FB13F574705F8DE24018CDE3BF25D982D6CA6373B

Fee Payment

Transaction by:	The application fee payment transaction was made by ER105407/Begum Nazia Jahan
Paid by:	The application fee was paid by CHARLOTTE A BARRY
Fee Amount:	\$2000.00
Paid Date:	The application fee was paid on 2024-08-23
Transaction/Voucher number:	The transaction number is 582EA000622916 and the voucher number is 718670

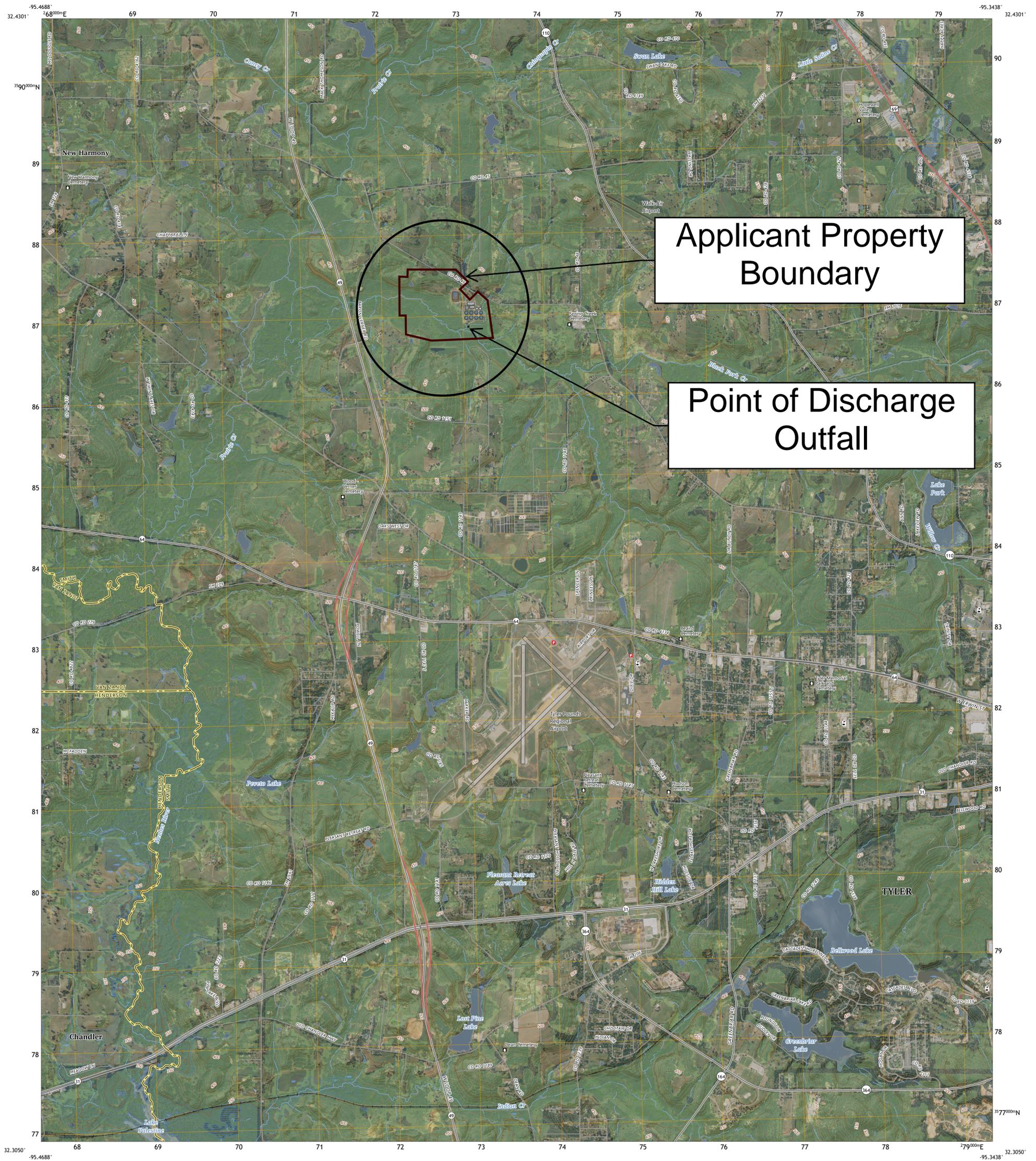
Submission

Reference Number:	The application reference number is 675367
Submitted by:	The application was submitted by ER105407/Begum Nazia Jahan
Submitted Timestamp:	The application was submitted on 2024-08-23 at 17:01:03 CDT
Submitted From:	The application was submitted from IP address 47.24.99.162
Confirmation Number:	The confirmation number is 559405
Steers Version:	The STEERS version is 6.81
Permit Number:	The permit number is WQ0010653001

Additional Information

Application Creator: This account was created by Begum Nazia Jahan

Form-20972
NOT APPLICABLE for Permit Renewal or Minor
Amendment Domestic Wastewater Permit Application



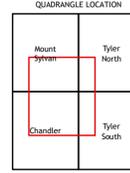
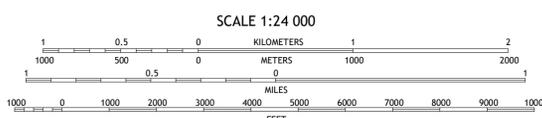
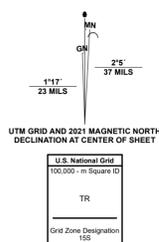
Applicant Property Boundary

Point of Discharge Outfall

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 15S
Data is provided by The National Map (TNM), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale.
Private lands within government reservations may not be shown. Obtain permission
before entering private lands. Temporal changes may have occurred since these data
were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



7.5-MINUTE TOPO, TX
2024

Form-20971
NOT APPLICABLE for Permit Renewal or Minor
Amendment Domestic Wastewater Permit Application

Buffer Zone Map
NOT APPLICABLE for Permit Renewal Application as per
Instructions for Domestic Wastewater Permit Application
Administrative Report 1.1



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

For any questions about this form, please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 26)

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

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

Minor Amendment (for any flow) \$150.00

Payment Information:

Mailed Check/Money Order Number:
 Check/Money Order Amount:
 Name Printed on Check:
 EPAY Voucher Number:
 Copy of Payment Voucher enclosed? Yes

Section 2. Type of Application (Instructions Page 26)

- a. Check the box next to the appropriate authorization type.
- Publicly-Owned Domestic Wastewater
 - Privately-Owned Domestic Wastewater
 - Conventional Wastewater Treatment
- b. Check the box next to the appropriate facility status.
- Active Inactive

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

- TPDES Permit
- TLAP
- TPDES Permit with TLAP component
- Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

- New
- Major Amendment with Renewal
- Major Amendment without Renewal
- Renewal without changes
- Minor Amendment with Renewal
- Minor Amendment without Renewal
- Minor Modification of permit

e. For amendments or modifications, describe the proposed changes: TPDES Permit No. WQ0010653001 OTHER REQUIREMENTS Item 4 states "The permittee is authorized to store the digested sludge in the sludge lagoon(s)..." This amendment seeks to clarify that the existing anaerobic digesters have been converted to sludge holding tanks, therefore the sludge stored in the sludge lagoon will be undigested sludge.

f. For existing permits:

Permit Number: WQ00 10653001
EPA I.D. (TPDES only): TX 0047996
Expiration Date: February 21, 2025

Section 3. Facility Owner (Applicant) and Co-Applciant Information (Instructions Page 26)

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

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

City of Tyler

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

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

CN: CN600335657

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

Prefix: Click to enter text. Last Name, First Name: Nick, Heather

Title: Assistant City Manager Credential: Click to enter text.

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

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

Click to enter text.

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

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

CN: Click to enter text.

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

Prefix: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

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

C. Core Data Form

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

Section 4. Application Contact Information (Instructions Page 27)

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

A. Prefix: Click to enter text.

Last Name, First Name: Norris, Mike

Title: Manager Wastewater Treatment System

Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710

City, State, Zip Code: Tyler, TX 75710

Phone No.: 903-539-1117

E-mail Address: mnorris@tylertexas.com

Check one or both:

Administrative Contact

Technical Contact

B. Prefix: Click to enter text.

Last Name, First Name: Elkins, Sarah

Title: Pretreatment Coordinator

Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710

City, State, Zip Code: Tyler, TX 75710

Phone No.: (903)595-7286

E-mail Address: Selkins@Tylertexas.com

Check one or both:

Administrative Contact

Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

Provide the names and contact information for two individuals that can be contacted throughout the permit term.

A. Prefix: Click to enter text.

Last Name, First Name: Norris, Mike

Title: Manager Wastewater Treatment System

Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710 City, State, Zip Code: Tyler, TX 75710

Phone No.: 903-539-1117 E-mail Address: mnorris@tylertexas.com

B. Prefix: Click to enter text. Last Name, First Name: Elkins, Sarah

Title: Pretreatment Coordinator Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710 City, State, Zip Code: Tyler, TX 75710

Phone No.: (903)595-7286 E-mail Address: Selkins@Tylertexas.com

Section 6. Billing Contact Information (Instructions Page 27)

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

Prefix: Click to enter text. Last Name, First Name: Norris, Mike

Title: Manager Wastewater Treatment System Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710 City, State, Zip Code: Tyler, TX 75710

Phone No.: 903-539-1117 E-mail Address: mnorris@tylertexas.com

Section 7. DMR/MER Contact Information (Instructions Page 27)

Provide the name and complete mailing address of the person delegated to receive and submit Discharge Monitoring Reports (DMR) (EPA 3320-1) or maintain Monthly Effluent Reports (MER).

Prefix: Click to enter text. Last Name, First Name: Peden, Ryan

Title: Chief Operator Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710 City, State, Zip Code: Tyler, TX 75710

Phone No.: 903-592-5391 E-mail Address: rpeden@tylertexas.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Click to enter text. Last Name, First Name: Norris, Mike

Title: Manager Wastewater Treatment System Credential: Click to enter text.

Organization Name: City of Tyler

Mailing Address: P.O. Box 2039, Tyler, TX 75710 City, State, Zip Code: Tyler, TX 75710

Phone No.: 903-539-1117 E-mail Address: mnorris@tylertexas.com

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

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

- E-mail Address
- Fax
- Regular Mail

C. Contact permit to be listed in the Notices

Prefix: [Click to enter text.](#) Last Name, First Name: Broussard, Edward
 Title: City Manager Credential: ICMA-CM
 Organization Name: City of Tyler
 Mailing Address: PO Box 2039 City, State, Zip Code: Tyler, TX 75710
 Phone No.: (903) 531-1250 E-mail Address: ebroussard@tylertexas.com

D. Public Viewing Information

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

Public building name: Tyler City Hall
 Location within the building: Public Notice Board
 Physical Address of Building: 212 N Bonner Ave, Tyler, TX 75702
 City: Tyler County: Smith
 Contact (Last Name, First Name): Broussard, Edward
 Phone No.: (903) 531-1250 Ext.: [Click to enter text.](#)

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.

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

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

- Yes No

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

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

- Yes No

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

Yes No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

Yes No

5. If the answer is **yes** to **question 1, 2, 3, or 4**, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish

F. Plain Language Summary Template

Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment.

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

G. Public Involvement Plan Form

Complete the Public Involvement Plan Form (TCEQ Form 20960) for each application for a **new permit or major amendment to a permit** and include as an attachment.

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

Section 9. Regulated Entity and Permitted Site Information (Instructions Page 29)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. RN RN101611150

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

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

Westside WWTP, Tyler

C. Owner of treatment facility: City of Tyler

Ownership of Facility: Public Private Both Federal

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

Prefix: [Click to enter text.](#) Last Name, First Name:

Title: [Click to enter text.](#) Credential: [Click to enter text.](#)

Organization Name: City of Tyler

Mailing Address: 14939 County Road 46 City, State, Zip Code: 75704

Phone No.: 903-531-1100 E-mail Address: [Click to enter text.](#)

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

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

E. Owner of effluent disposal site:

Prefix: [Click to enter text.](#) Last Name, First Name: [Click to enter text.](#)

Title: [Click to enter text.](#) Credential: [Click to enter text.](#)

Organization Name: City of Tyler

Mailing Address: 14939 County Road 46 City, State, Zip Code: 75704

Phone No.: 903-531-1100 E-mail Address: [Click to enter text.](#)

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

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

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

Prefix: [Click to enter text.](#) Last Name, First Name: [Click to enter text.](#)

Title: [Click to enter text.](#) Credential: [Click to enter text.](#)

Organization Name: City of Tyler

Mailing Address: 12920 FM2767 City, State, Zip Code: 75708

Phone No.: 903-531-1100 E-mail Address: [Click to enter text.](#)

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

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

Section 10. TPDES Discharge Information (Instructions Page 31)

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

Yes No

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

[Click to enter text.](#)

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

Yes No

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

[Click to enter text.](#)

City nearest the outfall(s): Tyler

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

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

Yes No

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

- Authorization granted Authorization pending

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

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

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: Smith County, Cherokee County, Anderson County, Houston County, Angelina County, Trinity County, Polk County, Tyler County, Henderson County

Section 11. TLAP Disposal Information (Instructions Page 32)

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

- Yes No

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

[Click to enter text.](#)

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

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

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

[Click to enter text.](#)

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

Section 12. Miscellaneous Information (Instructions Page 32)

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

- Yes No

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

- Yes No Not Applicable

If No, or if a new onsite sludge disposal authorization is being requested in this permit application, provide an accurate location description of the sewage sludge disposal site.

Click to enter text.

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

Yes No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application: [Click to enter text.](#)

D. Do you owe any fees to the TCEQ?

Yes No

If **yes**, provide the following information:

Account number: [Click to enter text.](#)

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

E. Do you owe any penalties to the TCEQ?

Yes No

If **yes**, please provide the following information:

Enforcement order number: [Click to enter text.](#)

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

Section 13. Attachments (Instructions Page 33)

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

- Lease agreement or deed recorded easement, if the land where the treatment facility is located or the effluent disposal site are not owned by the applicant or co-applicant.
- Original full-size USGS Topographic Map with the following information:
 - Applicant's property boundary
 - Treatment facility boundary
 - Labeled point of discharge for each discharge point (TPDES only)
 - Highlighted discharge route for each discharge point (TPDES only)
 - Onsite sewage sludge disposal site (if applicable)
 - Effluent disposal site boundaries (TLAP only)
 - New and future construction (if applicable)
 - 1 mile radius information
 - 3 miles downstream information (TPDES only)
 - All ponds.
- Attachment 1 for Individuals as co-applicants
- Other Attachments. Please specify: Attachment A: Site Drawing, Attachment B Treatment Process Description, Attachment C Process Flow Diagram, Attachment D Original General Highway Map, Attachment E USDA Natural Resources Conservation Service Soil Map, Attachment F Federal Emergency

Management Map, Attachment G Site Map, Attachment H Plan View and Profile of the Sludge Lagoon, Attachment I Size of the Sludge Lagoon, Attachment J Method of controlling infiltration of groundwater and surface water from entering the site, Attachment K Procedure to prevent nuisance conditions, Attachment S Summary of WET Test.

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: W00010653001

Applicant: City of Tyler

Certification:

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

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

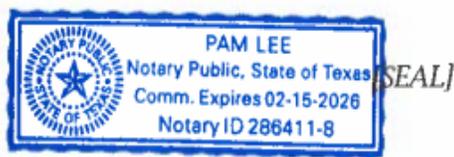
Signatory name (typed or printed): Heather Nick

Signatory title: Assistant City Manager

Signature: Heather Nick Date: 8/23/24
(Use blue ink)

Subscribed and Sworn to before me by the said Heather Nick
on this 23 day of August, 2024.
My commission expires on the 15 day of Feb, 2026.

Pam Lee
Notary Public



Smith
County, Texas

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

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

Section 2. Original Photographs (Instructions Page 38)

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

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

Section 3. Buffer Zone Map (Instructions Page 38)

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

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

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

- Ownership
- Restrictive easement
- Nuisance odor control
- Variance

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

- Yes
- No

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

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

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

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

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

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

BY OVERNIGHT/EXPRESS MAIL

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

Fee Code: WQP **Waste Permit No:**

1. Check or Money Order Number:
2. Check or Money Order Amount:
3. Date of Check or Money Order:
4. Name on Check or Money Order:

5. APPLICATION INFORMATION

Name of Project or Site:

Physical Address of Project or Site:

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

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 41)

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., Miss): [Click to enter text.](#)

Full legal name (Last Name, First Name, Middle Initial): [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 Number: [Click to enter text.](#) Fax Number: [Click to enter text.](#)

E-mail Address: [Click to enter text.](#)

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

For Commission Use Only:

Customer Number:

Regulated Entity Number:

Permit Number:

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

Core Data Form (TCEQ Form No. 10400) Yes
*(Required for all application 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 Yes
(TCEQ Form Nos. 10053 and 10054. Version dated 6/25/2018 or later.)

Water Quality Permit Payment Submittal Form (Page 19) Yes
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

7.5 Minute USGS Quadrangle Topographic Map Attached Yes
*(Full-size map if seeking "New" permit.
 8 ½ x 11 acceptable for Renewals and Amendments)*

Current/Non-Expired, Executed Lease Agreement or Easement N/A Yes

Landowners Map N/A Yes
(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.

Landowners Cross Reference List N/A Yes
(See instructions for landowner requirements)

Landowners Labels or USB Drive attached N/A Yes
(See instructions for landowner requirements)

Original signature per 30 TAC § 305.44 - Blue Ink Preferred Yes
*(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 Yes



DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

For any questions about this form, please contact the Domestic Wastewater Permitting Team at 512-239-4671.

The following information is required for all renewal, new, and amendment applications.

Section 1. Permitted or Proposed Flows (Instructions Page 43)

A. Existing/Interim I Phase

Design Flow (MGD): 13.0 MGD

2-Hr Peak Flow (MGD): 32.5 MGD

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

B. Interim II Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

C. Final Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

D. Current Operating Phase

Provide the startup date of the facility: 1968

Section 2. Treatment Process (Instructions Page 43)

A. Current Operating Phase

Provide a detailed description of the treatment process. **Include the type of treatment plant, mode of operation, and all treatment units.** Start with the plant's head works and

finish with the point of discharge. Include all sludge processing and drying units. **If more than one phase exists or is proposed, a description of *each phase* must be provided.**

See Attachment a: Treatment Process Description

B. Treatment Units

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

Table 1.0(1) - Treatment Units

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
<u>See Attachment b: Treatment Units</u>		

C. Process Flow Diagram

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

Attachment: See Attachment c: Process Flow Diagram

Section 3. Site Information and Drawing (Instructions Page 44)

Provide the TPDES discharge outfall latitude and longitude. Enter N/A if not applicable.

- Latitude: 32° 23' 46.0" N
- Longitude: 95° 24' 45.2" W

Provide the TLAP disposal site latitude and longitude. Enter N/A if not applicable.

- Latitude: N/A
- Longitude: N/A

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

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

Attachment: See Attachment A: Site Drawing

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

The facility serves the City of Tyler.

Collection System Information for wastewater TPDES permits only: Provide information for each **uniquely owned** collection system, existing and new, served by this facility, including satellite collection systems. **Please see the instructions for a detailed explanation and examples.**

Collection System Information

Collection System Name	Owner Name	Owner Type	Population Served
Westside WWTP	City of Tyler	Publicly Owned	60,000
Southside WWTP	City of Tyler	Publicly Owned	50,000

Section 4. Unbuilt Phases (Instructions Page 45)

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

- Yes No

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

- Yes No

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

N/A

Section 5. Closure Plans (Instructions Page 45)

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

Yes No

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

Yes No

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

Future plan on submitting a closure plan to TCEQ, prior to the demolition or decommissioning of the existing headworks, influent lift station, first-stage trickling filter 1, second-stage trickling filter 2, and nitrification basin facilities.

Section 6. Permit Specific Requirements (Instructions Page 45)

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

A. Summary transmittal

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

Yes No

If yes, provide the date(s) of approval for each phase: Existing was approved in 1988

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

N/A

B. Buffer zones

Have the buffer zone requirements been met?

Yes No

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

N/A

C. Other actions required by the current permit

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

Yes No

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

N/A

D. Grit and grease treatment

1. Acceptance of grit and grease waste

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

Yes No

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

2. Grit and grease processing

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

N/A

3. Grit disposal

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

Yes No

If No, contact the TCEQ Municipal Solid Waste team at 512-239-2335. Note: A registration or permit is required for grit disposal. Grit shall not be combined with treatment plant sludge. See the instruction booklet for additional information on grit disposal requirements and restrictions.

Describe the method of grit disposal.

N/A

4. Grease and decanted liquid disposal

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-2335.

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

N/A

E. Stormwater management

1. Applicability

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

Yes No

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

Yes No

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

2. MSGP coverage

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

Yes No

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

TXR05 0000 or TXRNE

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

Yes No

3. Conditional exclusion

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

Yes No

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

N/A

4. Existing coverage in individual permit

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

Yes No

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

N/A

5. Zero stormwater discharge

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

Yes No

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

N/A

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

6. Request for coverage in individual permit

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

Yes No

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

intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

N/A

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

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

Yes No

If yes, attach a Sewage Sludge Solids Management Plan. See Example 5 in the instructions.
N/A

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

1. Acceptance of sludge from other WWTPs

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

Yes No

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

In addition, provide the date the plant started or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD₅ concentration of the sludge, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

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

2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

Yes No

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

Yes No

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

Yes No

If **yes to any of the above**, provide the date the plant started or is anticipated to start accepting septic waste, an estimate of monthly septic waste acceptance (gallons or millions of gallons), an estimate of the BOD₅ concentration of the septic waste, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

1,492,138 average Gallons per month for the last 2 years

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

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

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

Yes No

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

N/A

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 50)

Is the facility in operation?

Yes No

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

If **yes**, provide effluent analysis data for the listed pollutants. **Wastewater treatment facilities** complete Table 1.0(2). **Water treatment facilities** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

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

Table1.0(2) – Pollutant Analysis for Wastewater Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD ₅ , mg/l	10.0	13.0	1	Comp	May 2024
Total Suspended Solids, mg/l	36.8	77.0	1	Comp	May 2024
Ammonia Nitrogen, mg/l	16.2	23.9	1	Comp	May 2024
Nitrate Nitrogen, mg/l	<0.5	N/A	1	Grab	June 2024
Total Kjeldahl Nitrogen, mg/l	28.5	N/A	1	Grab	July 2024
Sulfate, mg/l	52.9	61.45	1	Comp	May 2024
Chloride, mg/l	81.75	94.5	1	Comp	May 2024
Total Phosphorus, mg/l	3.21	N/A	1	Grab	July 2024
pH, standard units	7.05	7.4	1	Comp	May 2024
Dissolved Oxygen*, mg/l	354	388	1	Comp	May 2024
Chlorine Residual, mg/l	1.7	3.1	1	Comp	May 2024
<i>E.coli</i> (CFU/100ml) freshwater	2	7	1	Comp	May 2024
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	May 2024
Total Dissolved Solids, mg/l	N/A	N/A	N/A	N/A	N/A
Electrical Conductivity, µmohs/cm, †	849	N/A	1	Grab	July 2024
Oil & Grease, mg/l	<13.2	N/A	1	Grab	July 2024
Alkalinity (CaCO ₃)*, mg/l	210	N/A	1	Grab	July 2024

*TPDES permits only

†TLAP permits only

Table1.0(3) – Pollutant Analysis for Water Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Total Suspended Solids, mg/l	36.8	77	1	Comp	May 2024
Total Dissolved Solids, mg/l	N/A	N/A	N/A	N/A	N/A
pH, standard units	7.05	7.4	1	Comp	May 2024
Fluoride, mg/l	N/A	N/A	N/A	N/A	N/A
Aluminum, mg/l	228.5	231	2	Comp	May 2024
Alkalinity (CaCO ₃), mg/l	210	N/A	1	Grab	July 2024

Section 8. Facility Operator (Instructions Page 50)

Facility Operator Name: Ryan PedenFacility Operator's License Classification and Level: Class A Wastewater Treatment OperatorFacility Operator's License Number: WW0060915

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 51)

A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- Design flow \geq 1 MGD
- Serves \geq 10,000 people
- Class I Sludge Management Facility (per 40 CFR § 503.9)
- Biosolids generator
- Biosolids end user - land application (onsite)
- Biosolids end user - surface disposal (onsite)
- Biosolids end user - incinerator (onsite)

B. WWTP's Biosolids Treatment Process

Check all that apply. See instructions for guidance.

- Aerobic Digestion
- Air Drying (or sludge drying beds)
- Lower Temperature Composting
- Lime Stabilization
- Higher Temperature Composting
- Heat Drying
- Thermophilic Aerobic Digestion
- Beta Ray Irradiation
- Gamma Ray Irradiation
- Pasteurization
- Preliminary Operation (e.g. grinding, de-gritting, blending)
- Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)
- Sludge Lagoon
- Temporary Storage ($<$ 2 years)
- Long Term Storage (\geq 2 years)
- Methane or Biogas Recovery
- Other Treatment Process:

C. Biosolids Management

Provide information on the *intended* biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the permit will authorize

all biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Disposal in Landfill	On-Site Owner or Operator	Bulk	N/A	N/A	N/A

If “Other” is selected for Management Practice, please explain (e.g. monofill or transport to another WWTP):

D. Disposal site

Disposal site name: Greenwood Farms Landfill

TCEQ permit or registration number: 1972A

County where disposal site is located: Smith County

E. Transportation method

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

Name of the hauler: City Owned

Hauler registration number: City of Tyler #24540

Sludge is transported as a:

Liquid semi-liquid semi-solid solid

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 53)

A. Beneficial use authorization

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

Yes No

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

Yes No

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

Yes No

B. Sludge processing authorization

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

- | | | | | |
|--|--------------------------|-----|-------------------------------------|----|
| Sludge Composting | <input type="checkbox"/> | Yes | <input checked="" type="checkbox"/> | No |
| Marketing and Distribution of sludge | <input type="checkbox"/> | Yes | <input checked="" type="checkbox"/> | No |
| Sludge Surface Disposal or Sludge Monofill | <input type="checkbox"/> | Yes | <input checked="" type="checkbox"/> | No |
| Temporary storage in sludge lagoons | <input type="checkbox"/> | Yes | <input checked="" type="checkbox"/> | No |

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

- Yes No

Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

- Yes No

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

A. Location information

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

- Original General Highway (County) Map:
Attachment: Attachment d: Original General Highway Map
- USDA Natural Resources Conservation Service Soil Map:
Attachment: Attachment e: USDA Natural Resources Conservation Service Soil Map
- Federal Emergency Management Map:
Attachment: Attachment f: Federal Emergency Management Map
- Site map:
Attachment: Attachment g: Site Map

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

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

Attachment: N/A

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

N/A

B. Temporary storage information

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

Nitrate Nitrogen, mg/kg: <10.1

Total Kjeldahl Nitrogen, mg/kg: 18,300

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg: 18,300

Phosphorus, mg/kg: 18,433

Potassium, mg/kg: 1,455

pH, standard units: 8.0

Ammonia Nitrogen mg/kg: 6450

Arsenic: <41 mg/kg

Cadmium: <39 mg/kg

Chromium: <27,000 mg/kg

Copper: 301 mg/kg

Lead: <300 mg/kg

Mercury: 0.964 mg/kg

Molybdenum: <49.1 mg/kg

Nickel: 22.8 mg/kg

Selenium: <100 mg/kg

Zinc: <2800 mg/kg

Total PCBs: <1000 ug/kg

Provide the following information:

Volume and frequency of sludge to the lagoon(s): 500,000 gallons annually

Total dry tons stored in the lagoons(s) per 365-day period: Approximately 2200 dry tons

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

C. Liner information

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

Yes No

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

The liner material will be synthetic membrane liner with an underdrain with leachate detection and collection system.

D. Site development plan

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

Double disc pumps transfer sludge from the anaerobic digesters, which serve as sludge holding tanks, to either the dewatering facility or the sludge lagoon through an 8" ductile iron pipe. On-site valves enable diversion of the flow between the dewatering facility and the sludge lagoon as needed. Sludge directed to the lagoons is deposited by gravity. From there, sludge moves by gravity to the sludge truck loading station, where hauling trucks are filled for final sludge disposal.

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)
Attachment: Attachment h: Plan View and Profile of the sludge lagoon
- Copy of the closure plan
Attachment: N/A
- Copy of deed recordation for the site
Attachment: N/A
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons
Attachment: Attachment i: Size of the sludge lagoon
- Description of the method of controlling infiltration of groundwater and surface water from entering the site
Attachment: Attachment j: Method of controlling infiltration of groundwater and surface water from entering the site
- Procedures to prevent the occurrence of nuisance conditions
Attachment: Attachment k: Procedures to prevent the occurrence of nuisance conditions

E. Groundwater monitoring

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

Yes No

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

Attachment:

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 55)

A. Additional authorizations

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

Yes No

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

B. Permittee enforcement status

Is the permittee currently under enforcement for this facility?

Yes No

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

Yes No

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

N/A

Section 13. RCRA/CERCLA Wastes (Instructions Page 55)

A. RCRA hazardous wastes

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

Yes No

B. Remediation activity wastewater

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

Yes No

C. Details about wastes received

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

Attachment: N/A

Section 14. Laboratory Accreditation (Instructions Page 56)

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: Michael Norris

Title: Manger Wastewater Treatment Systems

Signature: 

Date: 8/19/2024

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

Section 1. Domestic Drinking Water Supply (Instructions Page 64)

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

Yes No

If **no**, proceed to Section 2. If **yes**, provide the following:

Owner of the drinking water supply: N/A

Distance and direction to the intake: N/A

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

Attachment: N/A

Section 2. Discharge into Tidally Affected Waters (Instructions Page 64)

Does the facility discharge into tidally affected waters?

Yes No

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

A. Receiving water outfall

Width of the receiving water at the outfall, in feet: N/A

B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

Yes No

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

N/A

C. Sea grasses

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

Yes No

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

N/A

Section 3. Classified Segments (Instructions Page 64)

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

- Yes No

If yes, this Worksheet is complete.

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

Section 4. Description of Immediate Receiving Waters (Instructions Page 65)

Name of the immediate receiving waters: Black Fork Creek

A. Receiving water type

Identify the appropriate description of the receiving waters.

- Stream
- Freshwater Swamp or Marsh
- Lake or Pond
- Surface area, in acres:
- Average depth of the entire water body, in feet:
- Average depth of water body within a 500-foot radius of discharge point, in feet:
- Man-made Channel or Ditch
- Open Bay
- Tidal Stream, Bayou, or Marsh
- Other, specify:

B. Flow characteristics

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

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

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

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

C. Downstream perennial confluences

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

Black Fork Creek, Prairie Creek, Neches River

D. Downstream characteristics

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

- Yes No

If yes, discuss how.

N/A

E. Normal dry weather characteristics

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

Normal flow with occasional small log jams and sand bars. The stream is fairly clear.

Date and time of observation: 8/6/2024, 2 pm

Was the water body influenced by stormwater runoff during observations?

- Yes No

Section 5. General Characteristics of the Waterbody (Instructions Page 66)

A. Upstream influences

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

- | | |
|---|---|
| <input type="checkbox"/> Oil field activities | <input checked="" type="checkbox"/> Urban runoff |
| <input type="checkbox"/> Upstream discharges | <input checked="" type="checkbox"/> Agricultural runoff |
| <input type="checkbox"/> Septic tanks | <input type="checkbox"/> Other(s), specify: |

B. Waterbody uses

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

- | | |
|---|---|
| <input checked="" type="checkbox"/> Livestock watering | <input checked="" type="checkbox"/> Contact recreation |
| <input checked="" type="checkbox"/> Irrigation withdrawal | <input checked="" type="checkbox"/> Non-contact recreation |
| <input checked="" type="checkbox"/> Fishing | <input type="checkbox"/> Navigation |
| <input checked="" type="checkbox"/> Domestic water supply | <input checked="" type="checkbox"/> Industrial water supply |
| <input checked="" type="checkbox"/> Park activities | <input type="checkbox"/> Other(s), specify: |

C. Waterbody aesthetics

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

Section 1. Toxic Pollutants (Instructions Page 78)

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

Grab Composite

Date and time sample(s) collected: 02/14/2024 and 5/07/2024

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrylonitrile	50	50	2	50
Aldrin	0.01	0.01	2	0.01
Aluminum	228.5	231	2	2.5
Anthracene	10	10	2	10
Antimony	5	5	4	5
Arsenic	4.74	8.12	4	0.5
Barium	43	52.10	2	3
Benzene	10	10	2	10
Benzidine	50	50	2	50
Benzo(a)anthracene	5	5	2	5
Benzo(a)pyrene	5	5	2	5
Bis(2-chloroethyl)ether	10	10	2	10
Bis(2-ethylhexyl)phthalate	10	10	2	10
Bromodichloromethane	<10	<10	2	10
Bromoform	10	10	2	10
Cadmium	0.79	1	4	1
Carbon Tetrachloride	2	2	2	2
Carbaryl	5	5	2	5
Chlordane*	0.2	0.2	2	0.2
Chlorobenzene	10	10	2	10
Chlorodibromomethane	12.7	15.4	2	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chloroform	10.7	11.4	2	10
Chlorpyrifos	0.05	0.05	2	0.05
Chromium (Total)	2.54	3	4	3
Chromium (Tri) (*1)	3	3	2	N/A
Chromium (Hex)	3	3	2	3
Copper	23.48	75.10	4	2
Chrysene	<5	<5	1	5
p-Chloro-m-Cresol	<10	<10	1	10
4,6-Dinitro-o-Cresol	<10	<10	1	50
p-Cresol				10
Cyanide (*2)	<10	<10	1	10
4,4'- DDD	<1	<1	1	0.1
4,4'- DDE	<1	<1	1	0.1
4,4'- DDT	<0.02	<0.02	1	0.02
2,4-D	< 0.7	< 0.7	1	0.7
Demeton (O and S)	0.2	0.2	2	0.20
Diazinon	0.5	0.5	2	0.5/0.1
1,2-Dibromoethane	10	10	2	10
m-Dichlorobenzene	<10	<10	1	10
o-Dichlorobenzene	<10	<10	1	10
p-Dichlorobenzene	<10	<10	1	10
3,3'-Dichlorobenzidine	<5	<5	1	5
1,2-Dichloroethane	10	10	2	10
1,1-Dichloroethylene	10	10	2	10
Dichloromethane	<20	<20	1	20
1,2-Dichloropropane	10	10	2	10
1,3-Dichloropropene	<10	<10	1	10
Dicofol	1	1	2	1
Dieldrin	0.02	0.02	2	0.02
2,4-Dimethylphenol	10	10	2	10
Di-n-Butyl Phthalate	10	10	2	10
Diuron	0.09	0.09	2	0.09
Endosulfan I (alpha)	0.01	0.01	2	0.01

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan II (beta)	0.02	0.02	2	0.02
Endosulfan Sulfate	1	1	2	0.1
Endrin	0.02	0.02	2	0.02
Ethylbenzene	<10	<10	1	10
Fluoride	500	500	2	500
Guthion	0.1	0.1	2	0.1
Heptachlor	0.01	0.01	2	0.01
Heptachlor Epoxide	0.01	0.01	2	0.01
Hexachlorobenzene	5	5	2	5
Hexachlorobutadiene	10	10	2	10
Hexachlorocyclohexane (alpha)	<0.05	<0.05	1	0.05
Hexachlorocyclohexane (beta)	<0.05	<0.05	1	0.05
gamma-Hexachlorocyclohexane (Lindane)	<0.05	<0.05	1	0.05
Hexachlorocyclopentadiene	10	10	2	10
Hexachloroethane	20	20	2	20
Hexachlorophene	10	10	2	10
Lead	0.75	1.72	4	0.5
Malathion	0.1	0.1	2	0.1
Mercury	0	0.01	4	0.005
Methoxychlor	2	2	2	2
Methyl Ethyl Ketone	50	50	2	50
Mirex	0.02	0.02	2	0.02
Nickel	2.54	3.12	4	2
Nitrate-Nitrogen	5118.00	9980	2	100
Nitrobenzene	10	10	2	10
N-Nitrosodiethylamine	20	20	2	20
N-Nitroso-di-n-Butylamine	20	20	2	20
Nonylphenol	13.8	13.8	2	333
Parathion (ethyl)	0.1	0.1	2	0.1
Pentachlorobenzene	20	20	2	20
Pentachlorophenol	5	5	2	5
Phenanthrene	10	10	2	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Polychlorinated Biphenyls (PCB's) (*3)	<0.2	<0.2	1	0.2
Pyridine	20	20	2	20
Selenium	4.83	5.36	4	5
Silver	0.5	0.5	4	0.5
1,2,4,5-Tetrachlorobenzene	20	20	2	20
1,1,2,2-Tetrachloroethane	10	10	2	10
Tetrachloroethylene	10	10	2	10
Thallium	0.63	1.02	4	0.5
Toluene	10	10	2	10
Toxaphene	0.3	0.3	2	0.3
2,4,5-TP (Silvex)	0.3	0.3	2	0.3
Tributyltin (see instructions for explanation)	0	0	0	0.01
1,1,1-Trichloroethane	10	10	2	10
1,1,2-Trichloroethane	10	10	2	10
Trichloroethylene	10	10	2	10
2,4,5-Trichlorophenol	50	50	2	50
TTHM (Total Trihalomethanes)	10.46	10.91	2	10
Vinyl Chloride	10	10	2	10
Zinc	34.75	56.70	4	5

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

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

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

Section 2. Priority Pollutants

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

Grab Composite

Date and time sample(s) collected:

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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Antimony	5	5	4	5
Arsenic	4.74	8.12	4	0.5
Beryllium	0.41	0.5	4	0.5
Cadmium	0.79	1	4	1
Chromium (Total)	2.54	3	4	3
Chromium (Hex)	3	3	2	3
Chromium (Tri) (*1)	3	3	2	N/A
Copper	23.48	75.10	4	2
Lead	0.75	1.72	4	0.5
Mercury	0	0.01	4	0.005
Nickel	2.54	3.12	4	2
Selenium	4.83	5.36	4	5
Silver	0.5	0.5	4	0.5
Thallium	0.63	1.02	4	0.5
Zinc	34.75	56.70	4	5
Cyanide (*2)	12.30	19.20	4	10
Phenols, Total	26.75	35	4	10

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

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

Table 4.0(2)B – Volatile Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrolein	50	50	2	50
Acrylonitrile	50	50	2	50
Benzene	10	10	2	10
Bromoform	10	10	2	10
Carbon Tetrachloride	2	2	2	2
Chlorobenzene	10	10	2	10
Chlorodibromomethane	12.7	15.4	2	10
Chloroethane	50	50	2	50
2-Chloroethylvinyl Ether	10	10	2	10
Chloroform	10.7	11.4	2	10
Dichlorobromomethane [Bromodichloromethane]	12.5	15	2	10
1,1-Dichloroethane	10	10	2	10
1,2-Dichloroethane	10	10	2	10
1,1-Dichloroethylene	10	10	2	10
1,2-Dichloropropane	10	10	2	10
1,3-Dichloropropylene [1,3-Dichloropropene]	10	10	2	10
1,2-Trans-Dichloroethylene	10	10	2	10
Ethylbenzene	10	10	2	10
Methyl Bromide	50	50	2	50
Methyl Chloride	50	50	2	50
Methylene Chloride	20	20	2	20
1,1,2,2-Tetrachloroethane	10	10	2	10
Tetrachloroethylene	10	10	2	10
Toluene	10	10	2	10
1,1,1-Trichloroethane	10	10	2	10
1,1,2-Trichloroethane	10	10	2	10
Trichloroethylene	10	10	2	10
Vinyl Chloride	10	10	2	10

Table 4.0(2)C – Acid Compounds

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

Table 4.0(2)D – Base/Neutral Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acenaphthene	10	10	2	10
Acenaphthylene	10	10	2	10
Anthracene	10	10	2	10
Benzidine	50	50	2	50
Benzo(a)Anthracene	5	5	2	5
Benzo(a)Pyrene	5	5	2	5
3,4-Benzofluoranthene	10	10	2	10
Benzo(ghi)Perylene	20	20	2	20
Benzo(k)Fluoranthene	5	5	2	5
Bis(2-Chloroethoxy)Methane	10	10	2	10
Bis(2-Chloroethyl)Ether	10	10	2	10
Bis(2-Chloroisopropyl)Ether	10	10	2	10
Bis(2-Ethylhexyl)Phthalate	10	10	2	10
4-Bromophenyl Phenyl Ether	10	10	2	10
Butyl benzyl Phthalate	10	10	2	10
2-Chloronaphthalene	10	10	2	10
4-Chlorophenyl phenyl ether	10	10	2	10
Chrysene	5	5	2	5
Dibenzo(a,h)Anthracene	5	5	2	5
1,2-(o)Dichlorobenzene	10	10	2	10
1,3-(m)Dichlorobenzene	10	10	2	10
1,4-(p)Dichlorobenzene	10	10	2	10
3,3-Dichlorobenzidine	5	5	2	5
Diethyl Phthalate	10	10	2	10
Dimethyl Phthalate	10	10	2	10
Di-n-Butyl Phthalate	10	10	2	10
2,4-Dinitrotoluene	10	10	2	10
2,6-Dinitrotoluene	10	10	2	10
Di-n-Octyl Phthalate	10	10	2	10
1,2-Diphenylhydrazine (as Azo-benzene)	20	20	2	20
Fluoranthene	10	10	2	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Fluorene	10	10	2	10
Hexachlorobenzene	5	5	2	5
Hexachlorobutadiene	10	10	2	10
Hexachlorocyclo-pentadiene	10	10	2	10
Hexachloroethane	20	20	2	20
Indeno(1,2,3-cd)pyrene	5	5	2	5
Isophorone	10	10	2	10
Naphthalene	0	0	2	10
Nitrobenzene	10	10	2	10
N-Nitrosodimethylamine	50	50	2	50
N-Nitrosodi-n-Propylamine	20	20	2	20
N-Nitrosodiphenylamine	20	20	2	20
Phenanthrene	10	10	2	10
Pyrene	10	10	2	10
1,2,4-Trichlorobenzene	10	10	2	10

Table 4.0(2)E - Pesticides

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Aldrin	0.01	0.01	2	0.01
alpha-BHC (Hexachlorocyclohexane)	0.05	0.05	2	0.05
beta-BHC (Hexachlorocyclohexane)	0.05	0.05	2	0.05
gamma-BHC (Hexachlorocyclohexane)	0.05	0.05	2	0.05
delta-BHC (Hexachlorocyclohexane)	0.05	0.05	2	0.05
Chlordane	0.2	0.2	2	0.2
4,4-DDT	0.02	0.02	2	0.02
4,4-DDE	1	1	2	0.1
4,4,-DDD	1	1	2	0.1
Dieldrin	0.02	0.02	2	0.02
Endosulfan I (alpha)	0.01	0.01	2	0.01
Endosulfan II (beta)	0.02	0.02	2	0.02
Endosulfan Sulfate	1	1	2	0.1
Endrin	0.02	0.02	2	0.02
Endrin Aldehyde	1	1	2	0.1
Heptachlor	0.01	0.01	2	0.01
Heptachlor Epoxide	0.01	0.01	2	0.01
PCB-1242	0.2	0.2	2	0.2
PCB-1254	0.2	0.2	2	0.2
PCB-1221	0.2	0.2	2	0.2
PCB-1232	0.2	0.2	2	0.2
PCB-1248	0.2	0.2	2	0.2
PCB-1260	0.2	0.2	2	0.2
PCB-1016	0.2	0.2	2	0.2
Toxaphene	0.3	0.3	2	0.3

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

Section 3. Dioxin/Furan Compounds

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

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

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

N/A

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

- Yes No

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

N/A

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

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

Grab Composite

Date and time sample(s) collected:

Table 4.0(2)F – Dioxin/Furan Compounds

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
2,3,7,8 TCDD	1					10
1,2,3,7,8 PeCDD	0.5					50
2,3,7,8 HxCDDs	0.1					50
1,2,3,4,6,7,8 HpCDD	0.01					50
2,3,7,8 TCDF	0.1					10
1,2,3,7,8 PeCDF	0.05					50
2,3,4,7,8 PeCDF	0.5					50
2,3,7,8 HxCDFs	0.1					50
2,3,4,7,8 HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

The following **is required** for facilities with a current operating design flow of **1.0 MGD or greater**, with an EPA-approved **pretreatment** program (or those required to have one under 40 CFR Part 403), or are required to perform Whole Effluent Toxicity testing. See instructions for further details.

This worksheet is not required for minor amendments without renewal.

Section 1. Required Tests (Instructions Page 88)

Indicate the number of 7-day chronic or 48-hour acute Whole Effluent Toxicity (WET) tests performed in the four and one-half years prior to submission of the application.

7-day Chronic: 16

48-hour Acute: 8

Section 2. Toxicity Reduction Evaluations (TREs)

Has this facility completed a TRE in the past four and a half years? Or is the facility currently performing a TRE?

Yes No

If yes, describe the progress to date, if applicable, in identifying and confirming the toxicant.

N/A

Section 3. Summary of WET Tests

If the required biomonitoring test information has not been previously submitted via both the Discharge Monitoring Reports (DMRs) and the Table 1 (as found in the permit), provide a summary of the testing results for all valid and invalid tests performed over the past four and one-half years. Make additional copies of this table as needed.

Table 5.0(1) Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal
	See Attachment S		
February 25, 2020	Ceriodaphnia dubia	100%	100%
February 25, 2020	Pimephales promelas	100%	100%
June 23, 2020	Ceriodaphnia dubia	100%	100%
June 23, 2020	Pimephales promelas	100%	100%
March 16, 2021	Daphnia pulex	100%	100%
March 16, 2021	Ceriodaphnia dubia	100%	100%
March 16, 2021	Pimephales promelas	100%	100%
June 8, 2021	Ceriodaphnia dubia	100%	100%
June 8, 2021	Pimephales promelas	100%	100%
June 21, 2021	Pimephales promelas	100%	100%
June 21, 2021	Daphnia pulex	100%	100%
December 14, 2021	Daphnia pulex	100%	100%
December 14, 2021	Pimephales promelas	100%	100%
December 14, 2021	Ceriodaphnia dubia	100%	100%
June 21, 2022	Ceriodaphnia dubia	100%	100%
June 21, 2022	Pimephales promelas	100%	100%
September 27, 2022	Daphnia pulex	100%	100%
September 27, 2022	Pimephales promelas	100%	100%
March 21, 2023	Daphnia pulex	100%	100%
March 21, 2023	Pimephales promelas	100%	100%
March 21, 2023	Ceriodaphnia dubia	100%	100%
September 26, 2023	Ceriodaphnia dubia	100%	100%
September 26, 2023	Daphnia pulex	100%	100%
September 26, 2023	Pimephales promelas	100%	100%
February 27, 2024	Ceriodaphnia dubia	100%	100%
February 27, 2024	Pimephales promelas	100%	100%
February 27, 2024	Daphnia pulex	100%	100%

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works.

Section 1. All POTWs (Instructions Page 89)

A. Industrial users (IUs)

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

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

Categorical IUs:

Number of IUs: 1

Average Daily Flows, in MGD: 1.38

Significant IUs - non-categorical:

Number of IUs: 3

Average Daily Flows, in MGD: 0.428

Other IUs:

Number of IUs: 1

Average Daily Flows, in MGD: 8,500

B. Treatment plant interference

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

Yes No

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

N/A

C. Treatment plant pass through

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

Yes No

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

N/A

D. Pretreatment program

Does your POTW have an approved pretreatment program?

Yes No

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program?

Yes No

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

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

Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 90)

A. Substantial modifications

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

Yes No

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

N/A

B. Non-substantial modifications

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

Yes No

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

N/A

C. Effluent parameters above the MAL

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

Table 6.0(1) – Parameters Above the MAL

Pollutant	Concentration	MAL	Units	Date
Arsenic	1.93	0.50	ug/L	2/2/2021
Arsenic	2.55	0.50	ug/L	4/20/2021
Arsenic	3.15	0.50	ug/L	9/1/2021
Arsenic	4.11	0.50	ug/L	10/26/21
Arsenic	2.45	0.50	ug/L	1/26/2022
Arsenic	2.44	0.50	ug/L	5/24/2022
Arsenic	3.83	0.50	ug/L	7/12/2022
Arsenic	5.64	0.50	ug/L	10/26/2022
Arsenic	2.26	0.50	ug/L	2/15/2023
Arsenic	6.36	0.50	ug/L	8/2/2023
Arsenic	8.12	0.50	ug/L	10/11/2023
Arsenic	2.05	0.50	ug/L	2/14/2024
Arsenic	2.42	0.50	ug/L	5/7/2024
Copper	11.50	2.00	ug/L	10/26/2021
Copper	3.16	2.00	ug/L	5/24/2022
Copper	2.06	2.00	ug/L	7/12/2022
Copper	2.41	2.00	ug/L	10/26/2022
Copper	2.16	2.00	ug/L	2/15/2023

Pollutant	Concentration	MAL	Units	Date
Copper	14.80	2.00	ug/L	5/7/2024
Lead	0.63	0.50	ug/L	5/24/2022
Lead	1.72	0.50	ug/L	5/7/2024
Nickel	3.29	2.00	ug/L	2/2/2021
Nickel	2.71	2.00	ug/L	4/20/2021
Nickel	3.82	2.00	ug/L	9/1/2021
Nickel	3.63	2.00	ug/L	1/26/2022
Nickel	3.48	2.00	ug/L	7/12/2022
Nickel	2.51	2.00	ug/L	10/26/2022
Nickel	3.15	2.00	ug/L	2/15/2023
Nickel	2.50	2.00	ug/L	8/2/2023
Nickel	2.22	2.00	ug/L	10/11/2023
Nickel	2.32	2.00	ug/L	2/14/2024
Nickel	3.12	2.00	ug/L	5/7/2024
Selenium	5.07	5.00	ug/L	7/12/2022
Selenium	6.47	5.00	ug/L	10/26/2022
Selenium	5.36	5.00	ug/L	5.7/2024
Zinc	23.90	5.00	ug/L	2/2/2021
Zinc	13.90	5.00	ug/L	4/20/2021
Zinc	40.50	5.00	ug/L	9/1/2021
Zinc	22.90	5.00	ug/L	10/26/21
Zinc	20.80	5.00	ug/L	1/26/2022
Zinc	16.40	5.00	ug/L	5/24/2022
Zinc	39.50	5.00	ug/L	10/26/2022
Zinc	14.50	5.00	ug/L	2/15/2023
Zinc	49.20	5.00	ug/L	8/2/2023
Zinc	14.80	5.00	ug/L	10/11/2023
Zinc	18.30	5.00	ug/L	2/14/2024
Zinc	56.70	5.00	ug/L	5/7/2024
Phenols, Total	29.00	10.00	ug/L	8/2/2023
Phenols, Total	16.00	10.00	ug/L	10/11/2023
Phenols, Total	35.00	10.00	ug/L	2/14/2024
Phenols, Total	27.00	10.00	ug/L	5/7/2024
Chloroform	11.40	10.00	ug/L	8/2/2023

Pollutant	Concentration	MAL	Units	Date
Dichlorobromomethane	15.00	10.00	ug/L	8/2/2023
Aluminum	184.00	2.50	ug/L	2/2/2021
Aluminum	69.80	2.50	ug/l	9/1/2021
Aluminum	119.00	2.50	ug/l	1/26/2022
Aluminum	293.00	2.50	ug/l	7/12/2022
Aluminum	161.00	2.50	ug/l	2/15/2023
Aluminum	226.00	2.50	ug/l	8/2/2023
Aluminum	231.00	2.50	ug/l	2/14/2024
Barium	37.10	3.00	ug/l	2/2/2021
Barium	23.00	3.00	ug/l	9/1/2021
Barium	11.40	3.00	ug/l	1/26/2022
Barium	27.30	3.00	ug/l	7/12/2022
Barium	32.50	3.00	ug/l	2/15/2023
Barium	52.10	3.00	ug/l	8/2/2023
Barium	33.90	3.00	ug/l	2/14/2024
Nitrate-Nitrogen	4,730.00	100.00	ug/L	2/2/2021
Nitrate-Nitrogen	8,770.00	100.00	ug/L	9/1/2021
Nitrate-Nitrogen	5,570.00	100.00	ug/L	1/26/2022
Nitrate-Nitrogen	233.00	100.00	ug/L	2/15/2023
Nitrate-Nitrogen	9,980.00	100.00	ug/L	8/2/2023
Nitrate-Nitrogen	256.00	100.00	ug/L	2/14/2024

D. Industrial user interruptions

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

Yes No

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

N/A

Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 90)

A. General information

Company Name: Delek Refining

SIC Code: 2911

Contact name: Tancy Matthews

Address: 425 McMurry Dr.

City, State, and Zip Code: Tyler, TX 75702

Telephone number: 903-579-7613

Email address: Tancy.Matthews@delekus.com

B. Process information

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

Petroleum refining, oil and water separation, steam stripping

C. Product and service information

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

Gasoline and other types of fuel

D. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: 1,300,000

Discharge Type: Continuous Batch Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: 80,000

Discharge Type: Continuous Batch Intermittent

E. Pretreatment standards

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

Yes No

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

Yes No

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

Category: Subcategories: 40 CFR 433.17

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

F. Industrial user interruptions

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

Yes No

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

N/A

G. General information

Company Name: Hiland Dairy
SIC Code: 2026
Contact name: Patrick Moore
Address: 200 North Fuller
City, State, and Zip Code: Tyler, TX 75702
Telephone number: 903-752-9453
Email address: PMoore@hilanddairy.com

H. Process information

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

Boiler blow down, noncontact cooling, equipment washdown and cleaning

I. Product and service information

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

Milk and dairy bottler

J. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: 156,122
Discharge Type: Continuous Batch Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: 2,000
Discharge Type: Continuous Batch Intermittent

K. Pretreatment standards

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

Yes No

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

Yes No

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

Category: Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

L. Industrial user interruptions

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

Yes No

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

M. General information

Company Name: John Soules Foods

SIC Code: 2011

Contact name: Robin Sullivan

Address: 10150 FM 14

City, State, and Zip Code: Tyler, TX 75712

Telephone number: 903-574-0725

Email address: rsullivan@jsfoods.com

N. Process information

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

Meat processing and packaging, sanitation and cleaning equipment

O. Product and service information

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

Packaged beef and chicken products. Cooked and uncooked.

P. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: 150,000

Discharge Type: Continuous Batch Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: 10,000

Discharge Type: Continuous Batch Intermittent

Q. Pretreatment standards

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

Yes No

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

Yes No

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

Category: Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

R. Industrial user interruptions

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

Yes No

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

S. General information

Company Name: Aramark Services

SIC Code: 7218

Contact name: Roger Glass

Address: 2821 Robertson Rd

City, State, and Zip Code: Tyler, TX 75701

Telephone number: 903-597-1101

Email address: Glass-roger@aramark.com

T. Process information

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

Industrial Laundry, uniforms, shop rags, mats. Boiler blowdown, oil and grease removal, sludge filter press.

U. Product and service information

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

Industrial washing of uniforms, rags and mats

V. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: 90,000

Discharge Type: Continuous Batch Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: 20,000

Discharge Type: Continuous Batch Intermittent

W. Pretreatment standards

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

Yes No

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

Yes No

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

Category: Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

Category:

Subcategories:

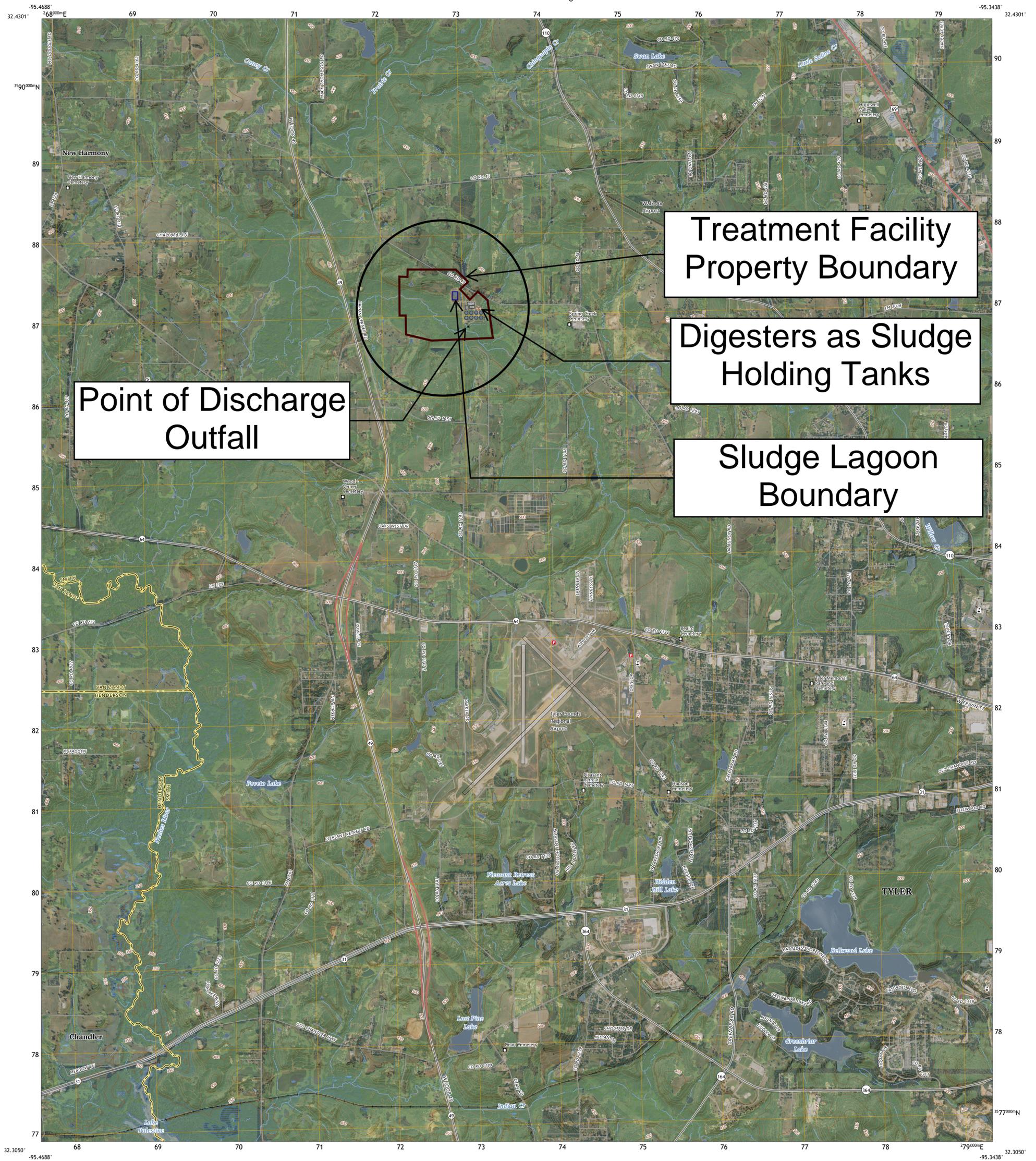
X. Industrial user interruptions

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

Yes No

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

TPDES PERMIT RENEWAL APPLICATION
ATTACHMENT X: Site Drawing



Point of Discharge
Outfall

Treatment Facility
Property Boundary

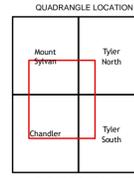
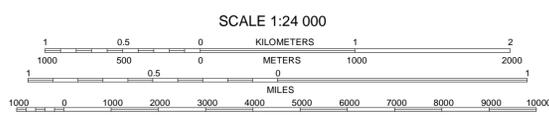
Digesters as Sludge
Holding Tanks

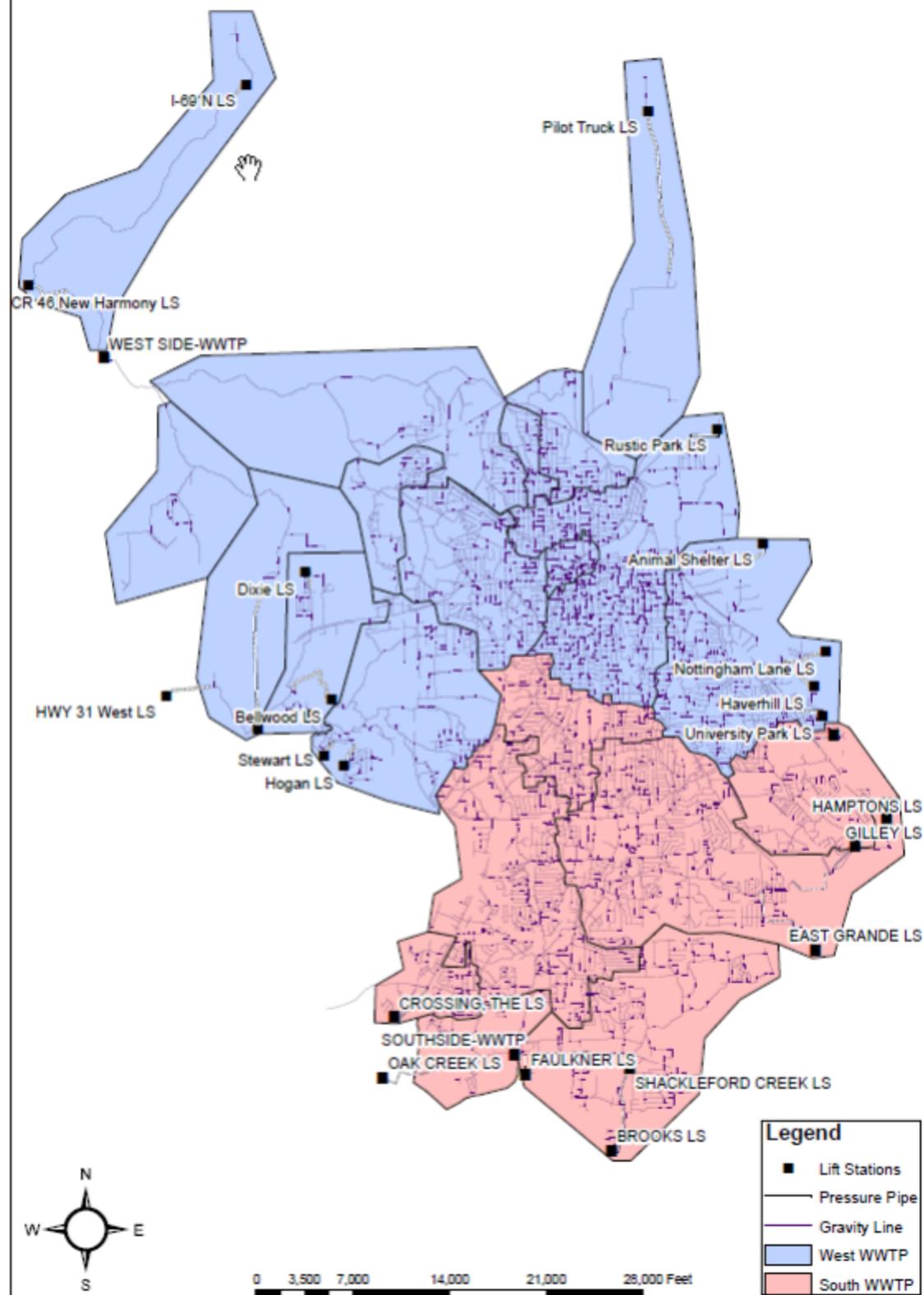
Sludge Lagoon
Boundary

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83),
World Geodetic System of 1984 (WGS84), Projection,
and 1 000-meter grid/Universal Transverse Mercator, Zone 15S
Data is provided by The National Map (TNM), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthimagery. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.

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were collected and some data may no longer represent actual surface conditions.

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I-89 N LS

Pilot Truck LS

CR 46 New Harmony LS

WEST SIDE-WWTP

Rustic Park LS

Animal Shelter LS

Dixie LS

Nottingham Lane LS

HWY 31 West LS

Bellwood LS

Haverhill LS

Stewart LS

Hogan LS

University Park LS

HAMPTONS LS

GILLEY LS

EAST GRANDE LS

CROSSING THE LS

SOUTH SIDE-WWTP

OAK CREEK LS

FAULKNER LS

SHACKLEFORD CREEK LS

BROOKS LS

Legend

- Lift Stations
- Pressure Pipe
- Gravity Line
- West WWTP
- South WWTP



0 3,500 7,000 14,000 21,000 28,000 Feet

TPDES PERMIT RENEWAL APPLICATION

Attachment a: Treatment Process Description

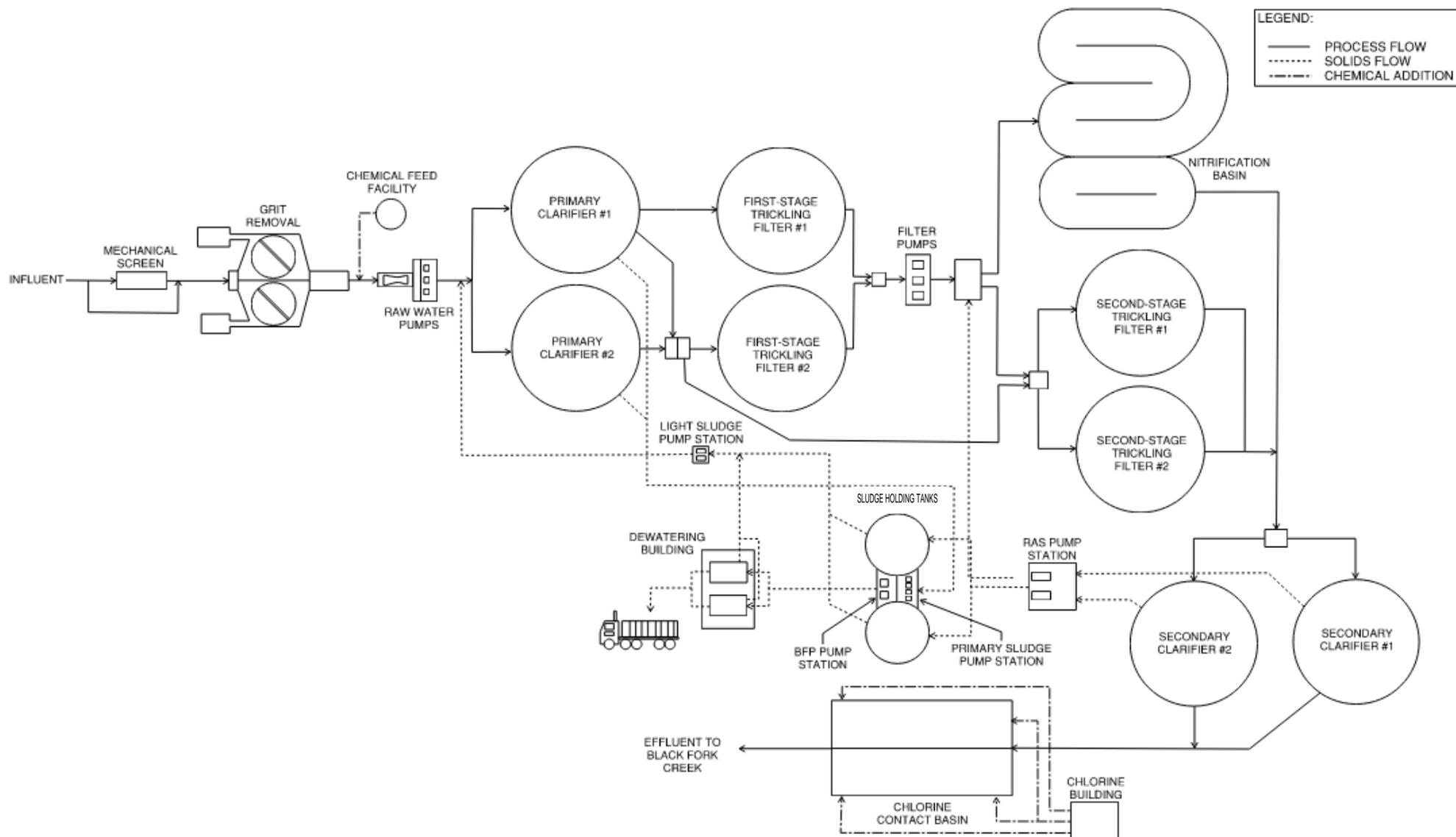
The Westside WWTP is located at 14939 County Rd 46 in Smith County, Texas and is currently permitted for a design flow of 13 MGD. The current treatment facility consists of a headworks facility housing a mechanical screen and grit removal. The flow then enters the raw sewage pump station and is pumped to the primary clarifiers. Following primary clarification, the flow enters the first stage trickling filters. The flow is then split and sent to either nitrification basins or second stage trickling filters. Consequently, the flow from nitrification basin and second stage trickling filters is combined and sent to the final clarifiers where sludge is removed and sent to a RAS/WAS pump station. RAS is pumped back to a flow control structure upstream of the nitrification basins/second stage trickling filters and is mixed with the process flow. Flow is then sent to a chlorine contact basin where it is disinfected prior to being discharged to Black Fork Creek. The flow is oxygenated via mechanical surface aerators within the chlorine contact chambers. The WAS and primary sludge removed from the clarifiers is sent to the dewatering building where it is dewatered by belt filter presses (BFPs) before being disposed of to the sludge storage lagoon.

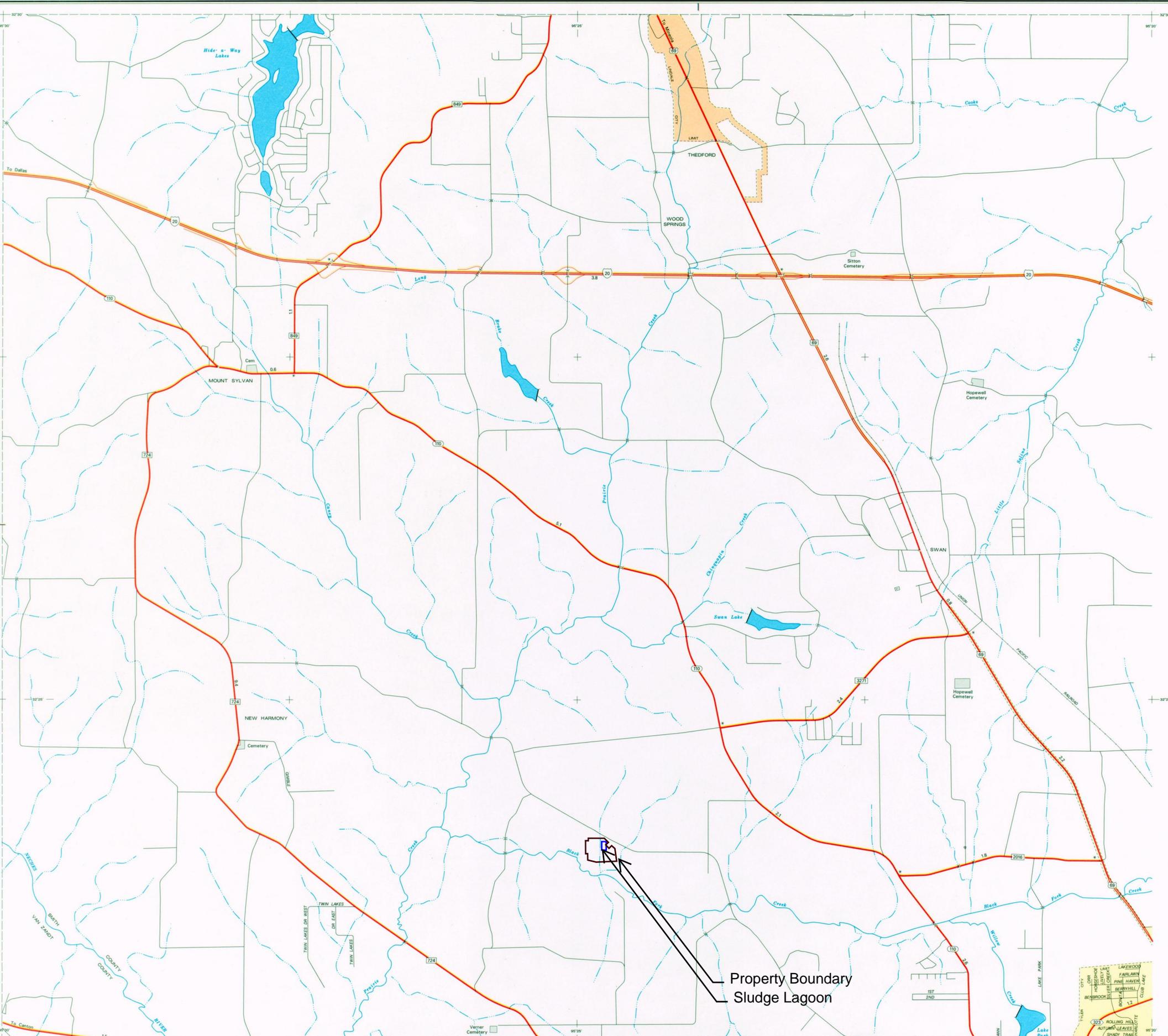
TPDES Permit Renewal Application
 ATTACHMENT b: Treatment Units

Treatment Unit Type	No. of Units	Length, ft	Width, ft	Depth, ft	Volume, ft ³	Volume, gal	Surface, ft ²
Mechanical Screen	1						
Grit Removal	2	34	4.5	5	765	5,722	153
Mg (OH) ₂ Storage Tank	1	12 dia.		20	2,262	16,919	980
Primary Clarifiers	2	150 dia.		10	176,715	1,321,828	40,055
First Stage Trickling Filters	2	151 dia.					
Nitrification Basin	1	185	50	20	185,000	1,383,800	9,250
Second Stage Trickling Filters	2	150 dia.					
Secondary Clarifiers	2	150 dia.		15	265,073	1,982,742	42,412
Chlorine Contact Basin	1	75	50	11	41,250	308,550	3,750
Anaerobic Digesters	2	95 dia.		17	121,209	906,642	19,280
Belt Filter Press	2						

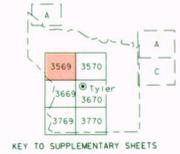
TPDES PERMIT RENEWAL APPLICATION

Attachment c: Process Flow Diagram





- LEGEND**
- NATIONAL OR STATE BOUNDARY
 - COUNTY BOUNDARY
 - LIMIT OF ENLARGED DETAIL
 - CITY LIMIT
 - RAILROAD
 - PRIVATE ROAD
 - ROAD OR STREET
 - DIVIDED ROAD OR STREET
 - HIGHWAY
 - DIVIDED HIGHWAY
 - DIVIDED HIGHWAY WITH FRONTAGE ROADS
 - WILLEGE BETWEEN POINTS
 - INTERSTATE HIGHWAY
 - U.S. NUMBERED HIGHWAY
 - STATE HIGHWAY
 - STATE HIGHWAY LOOP OR SPUR
 - FARM OR RANCH TO MARKET ROAD
 - RECREATIONAL ROAD
 - U.S. BUSINESS ROUTES
 - COUNTY SEAT
 - TOWN SYMBOLS
 - BOUNDARY OR CROSSING SEPARATION OVER 25'
 - LOW WATER CROSSING
 - INTERMITTENT STREAM
 - FLOWING STREAM
 - SWAMP OR BRACK CHANNEL
 - LAKE WITH DAM
 - AREA SUBJECT TO INUNDATION
 - INTERMITTENT LAKE
 - PERMANENT ELEVATION EQUIPMENT OR BUOY
 - AIRPORT WITH FACILITIES
 - MILITARY AIRBASE
 - HISTORIC SITE
 - TROOP SIGNAL MARKER
 - U.S. CUSTOMS PORT OF ENTRY
 - TROOP TOURIST BUREAU
 - CEMETERY
 - TROOP DISTRICT OFFICE
 - TROOP HEADQUARTERS
 - COUNTRY CLUB / GOLF COURSE



GENERAL HIGHWAY MAP
 SUPPLEMENTARY SHEET
 SHOWING
**DETAIL OF CITIES AND TOWNS
 SMITH COUNTY TEXAS**
 PREPARED BY THE
**TEXAS DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION PLANNING AND PROGRAMMING DIVISION**
 IN COOPERATION WITH THE
**U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION**



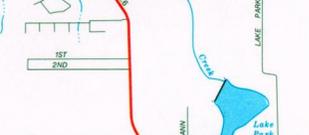
1990
 1990 CENSUS FIGURES
 HIGHWAYS REVISED TO JUNE 1, 1996

NOTICE
 This map has been prepared for internal use within the Texas Department of Transportation. Accuracy is limited to the validity of available data as of issue date.

TRAVEL INFORMATION
 Dial 1-800-452-6292 for travel assistance from a professional Texas travel counselor, including parking in Texas, emergency road condition information, and other travel services, or to register a comment or complaint about department operations. Copies of this map are available for public use at nominal cost from the Texas Department of Transportation, 4500 Jackson Avenue, Austin, Texas 78751 or mail requests may be sent to the Budget and Finance Division, P. O. Box 5020, Austin, Texas 78763-5020.

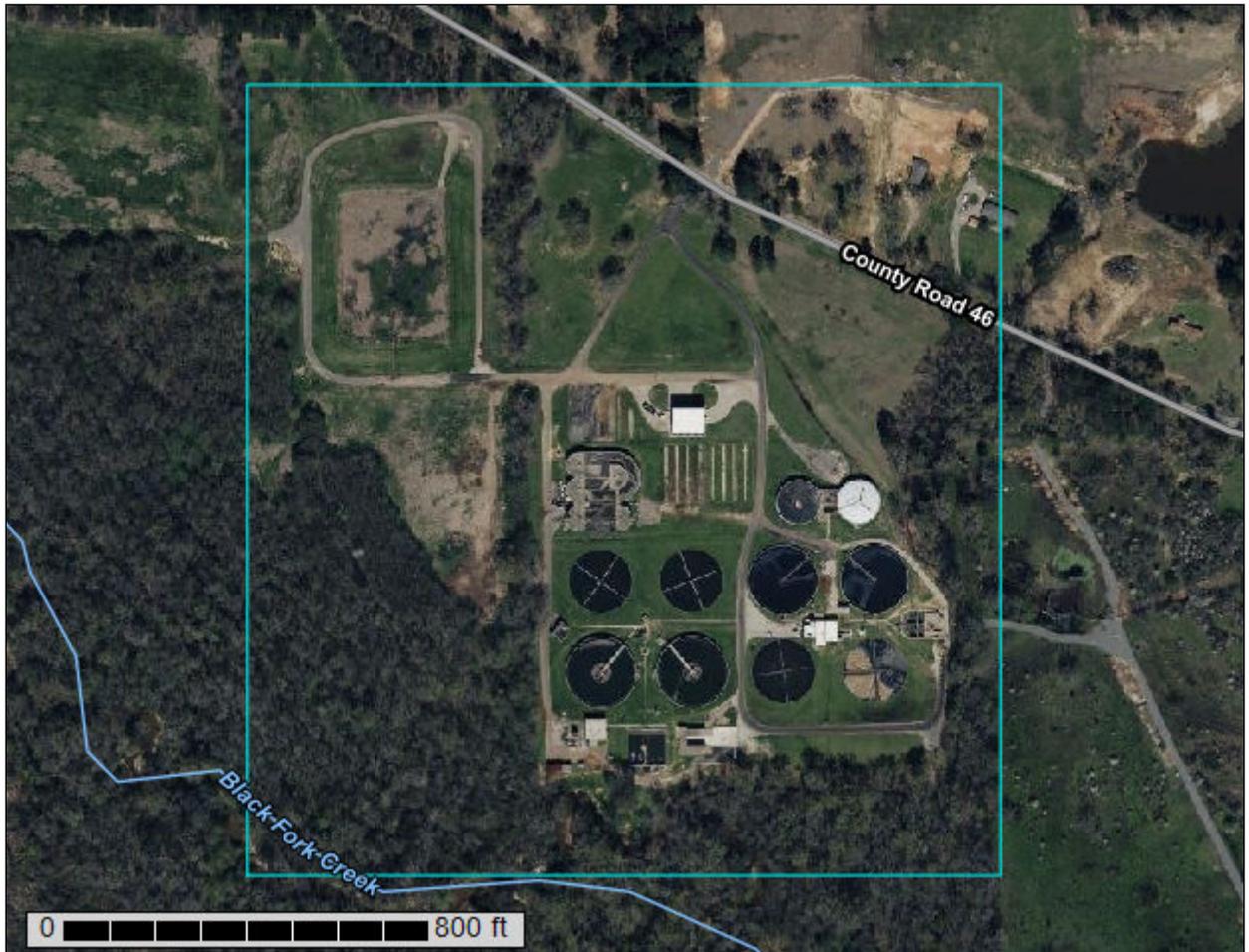
LAMBERT CONFORMAL CONIC PROJECTION - 1927 NORTH AMERICAN DATUM
 STANDARD PARALLELS 27°25' AND 34°55'

Property Boundary
 Sludge Lagoon



A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Smith County, Texas



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

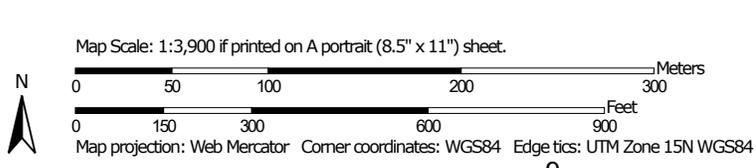
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Smith County, Texas
 Survey Area Data: Version 22, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 19, 2023—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CfE	Cuthbert fine sandy loam, 5 to 20 percent slopes	7.8	11.9%
CgE	Cuthbert gravelly fine sandy loam, 12 to 30 percent slopes	1.9	3.0%
Ma	Mattex loam, 0 to 1 percent slopes, frequently flooded	54.1	82.5%
OkB	Oakwood fine sandy loam, 1 to 5 percent slopes	0.4	0.6%
OkD	Oakwood fine sandy loam, 5 to 8 percent slopes	1.3	2.0%
Totals for Area of Interest		65.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Smith County, Texas

CfE—Cuthbert fine sandy loam, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2tlk9
Elevation: 180 to 630 feet
Mean annual precipitation: 40 to 52 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 208 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Cuthbert and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cuthbert

Setting

Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 9 inches: fine sandy loam
Bt - 9 to 26 inches: clay
BCt - 26 to 34 inches: sandy clay loam
C - 34 to 80 inches: sandy clay loam

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Tenaha

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Kirvin

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

CgE—Cuthbert gravelly fine sandy loam, 12 to 30 percent slopes

Map Unit Setting

National map unit symbol: mb4y
Elevation: 400 to 750 feet
Mean annual precipitation: 40 to 56 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 208 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Cuthbert and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cuthbert

Setting

Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 7 inches: gravelly fine sandy loam
H2 - 7 to 20 inches: clay

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H3 - 20 to 28 inches: sandy clay loam

H4 - 28 to 60 inches: sandy clay loam

Properties and qualities

Slope: 12 to 30 percent

Depth to restrictive feature: 20 to 40 inches to densic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Ecological site: F133BY003TX - Loamy Over Clayey Upland

Hydric soil rating: No

Minor Components

Tenaha

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F133BY006TX - Northern Sandy Loam Upland

Hydric soil rating: No

Redsprings

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY003TX - Loamy Over Clayey Upland

Hydric soil rating: No

Ma—Mattex loam, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2tcp1

Elevation: 150 to 600 feet

Mean annual precipitation: 43 to 60 inches

Mean annual air temperature: 63 to 68 degrees F

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Frost-free period: 201 to 269 days

Farmland classification: Not prime farmland

Map Unit Composition

Mattex and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattex

Setting

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loamy alluvium

Typical profile

A - 0 to 8 inches: loam

Bg1 - 8 to 13 inches: loam

Bg2 - 13 to 39 inches: loam

Bg3 - 39 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 12 to 18 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 5w

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D

Ecological site: F133BY017TX - Loamy Bottomland

Hydric soil rating: Yes

Minor Components

lulus

Percent of map unit: 10 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: F133BY014TX - Creek Bottomland

Hydric soil rating: No

OkB—Oakwood fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: mb5m
Elevation: 250 to 550 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 235 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Oakwood and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oakwood

Setting

Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 15 inches: fine sandy loam
H2 - 15 to 39 inches: sandy clay loam
H3 - 39 to 72 inches: sandy clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Raino

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Gallime

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

OkD—Oakwood fine sandy loam, 5 to 8 percent slopes

Map Unit Setting

National map unit symbol: mb5n
Elevation: 250 to 550 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 208 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Oakwood and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oakwood

Setting

Landform: Interfluves

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 18 inches: fine sandy loam

H2 - 18 to 26 inches: sandy clay loam

H3 - 26 to 70 inches: sandy clay loam

Properties and qualities

Slope: 5 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 42 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: F133BY005TX - Loamy Upland

Hydric soil rating: No

Minor Components

Cuthbert

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F133BY003TX - Loamy Over Clayey Upland

Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent

Landform: Interfluves

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Custom Soil Resource Report

Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Kirvin

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties—Smith County, Texas														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
CfE—Cuthbert fine sandy loam, 5 to 20 percent slopes														
Cuthbert	90	C	0-4	Fine sandy loam	SM	A-4, A-2-4	0- 0- 0	0- 1- 1	91-91-100	77-79-100	65-71-95	26-32-48	0-16 -32	NP-4 -7
			4-9	Fine sandy loam	SM	A-4, A-2-4	0- 0- 0	0- 1- 1	92-92-100	78-80-100	66-73-95	27-33-48	0-16 -32	NP-4 -7
			9-26	Clay loam, sandy clay, sandy clay loam, clay	CL, CH	A-7-6, A-6	0- 0- 0	0- 1- 1	91-91-100	77-79-100	65-72-100	52-63-87	37-51 -64	19-30-40
			26-34	Clay loam, fine sandy loam, sandy clay loam	CL, SC	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	86-89-100	68-77-94	38-48-61	29-37 -45	11-19-26
			34-80	Sandy clay loam	CL, SC-SM	A-7-6, A-4, A-6	0- 0- 0	0- 0- 0	100-100-100	100-100-100	82-87-92	44-52-57	21-33 -45	7-17-26

Engineering Properties--Smith County, Texas														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	
CgE--Cuthbert gravelly fine sandy loam, 12 to 30 percent slopes														
Cuthbert	80	C	0-7	Gravelly fine sandy loam	SM	A-2-4, A-4, A-1-b	0- 1- 1	0- 3- 5	60-74-88	50-65-80	35-55-75	20-35-49	0-16 -32	NP-4 -7
			7-20	Sandy clay, sandy clay loam, clay	CH, SC	A-7-6, A-6	0- 0- 0	0- 1- 1	85-93-100	75-88-100	65-83-100	45-72-98	37-51 -64	19-30-40
			20-28	Clay loam, sandy clay loam, fine sandy loam	CL, SC	A-7-6, A-2-6, A-6	0- 0- 0	0- 1- 1	85-93-100	80-90-100	75-88-100	28-56-84	29-37 -45	11-19-26
			28-60	Sandy clay loam	CL, SC-SM	A-6, A-7-6, A-2-4	0- 0- 0	0- 2- 3	85-93-100	80-90-100	75-88-100	28-56-84	21-33 -45	7-17-26
Ma--Mattex loam, 0 to 1 percent slopes, frequently flooded														
Mattex	90	B/D	0-8	Loam	SM, CL	A-4	0- 0- 0	0- 0- 0	95-96-100	84-91-100	69-80-92	46-57-68	0-23 -28	NP-8 -10
			8-13	Loam, clay loam, sandy clay loam	CL, SM	A-4, A-6	0- 0- 0	0- 0- 0	95-96-100	84-91-100	70-82-98	49-62-78	26-33 -40	4-11-18
			13-39	Loam, clay loam, sandy clay loam	CL, SM	A-4, A-6	0- 0- 0	0- 0- 0	95-96-100	84-91-100	70-82-98	49-62-78	26-33 -40	4-11-18
			39-80	Loam, clay loam, sandy clay loam	CL, ML	A-4, A-6	0- 0- 0	0- 0- 0	95-96-100	84-91-100	71-83-99	50-65-80	26-34 -40	4-12-18

Engineering Properties--Smith County, Texas														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
OkB--Oakwood fine sandy loam, 1 to 5 percent slopes														
Oakwood	80	C	0-15	Fine sandy loam	SM, CL-ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	36-46-55	0-13 -25	NP-4 -7
			15-39	Clay loam, sandy clay loam, fine sandy loam	CL, SC	A-6, A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	40-58-75	20-30 -40	8-15-22
			39-72	Fine sandy loam, sandy clay loam, clay loam	CL, SC	A-6, A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	80-88-95	40-58-75	20-30 -40	8-15-22
OkD--Oakwood fine sandy loam, 5 to 8 percent slopes														
Oakwood	80	C	0-18	Fine sandy loam	SM, CL-ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	36-46-55	0-13 -25	NP-4 -7
			18-26	Clay loam, sandy clay loam, fine sandy loam	CL, SC	A-6, A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	40-58-75	20-30 -40	8-15-22
			26-70	Fine sandy loam, sandy clay loam, clay loam	CL, SC	A-6, A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	80-88-95	40-58-75	20-30 -40	8-15-22

Data Source Information

Soil Survey Area: Smith County, Texas
 Survey Area Data: Version 22, Sep 5, 2023

National Flood Hazard Layer FIRMMette



95°25'4"W 32°24'6"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

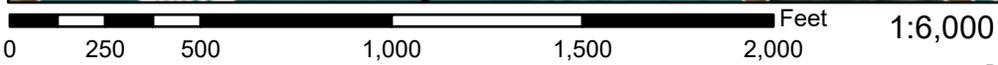
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **8/1/2024 at 12:34 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

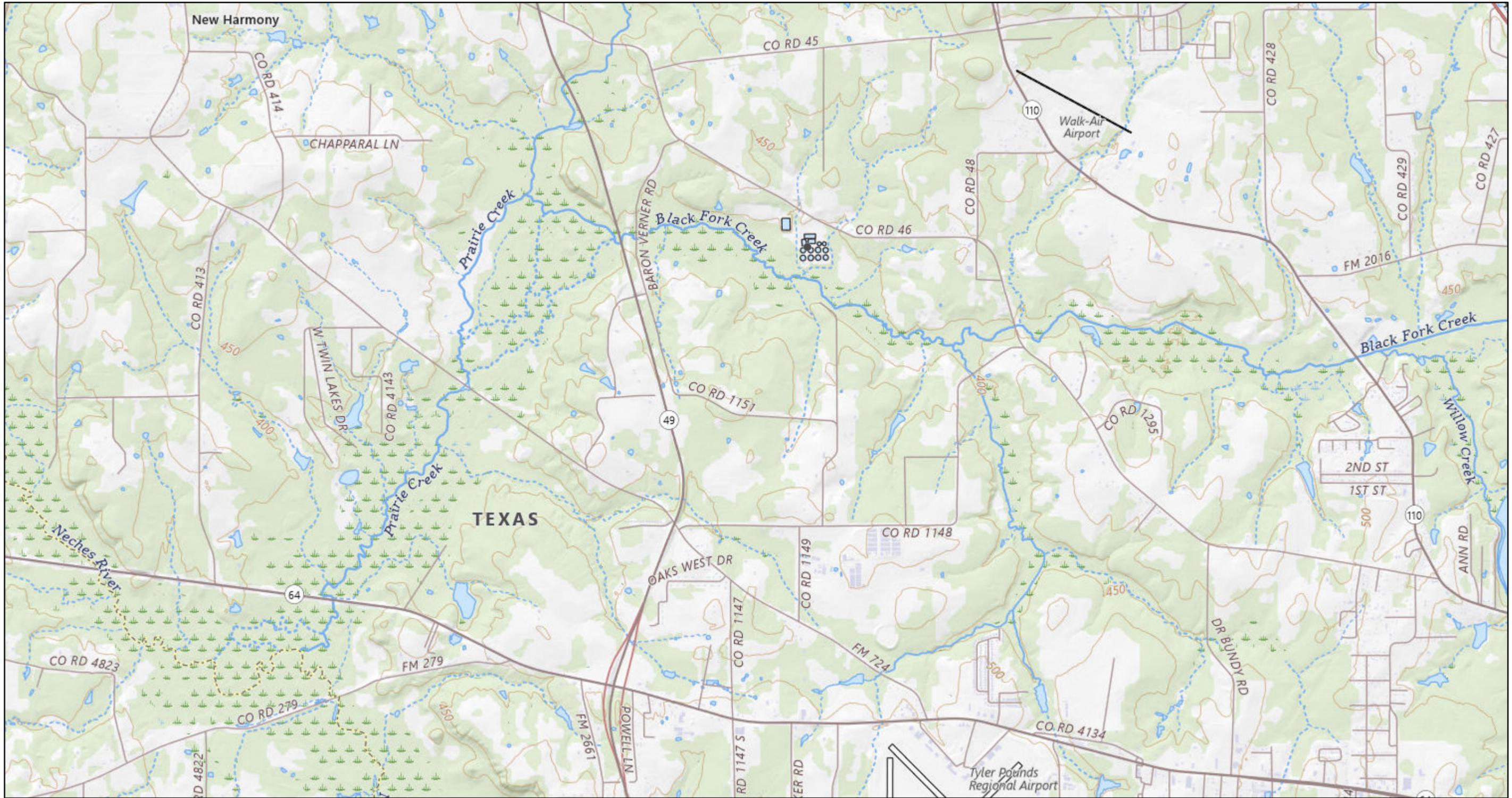
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Basemap Imagery Source: USGS National Map 2023

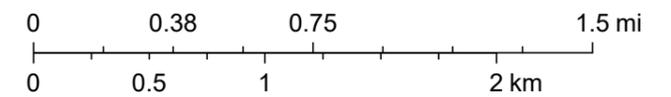
95°24'27"W 32°23'36"N

The National Map Advanced Viewer



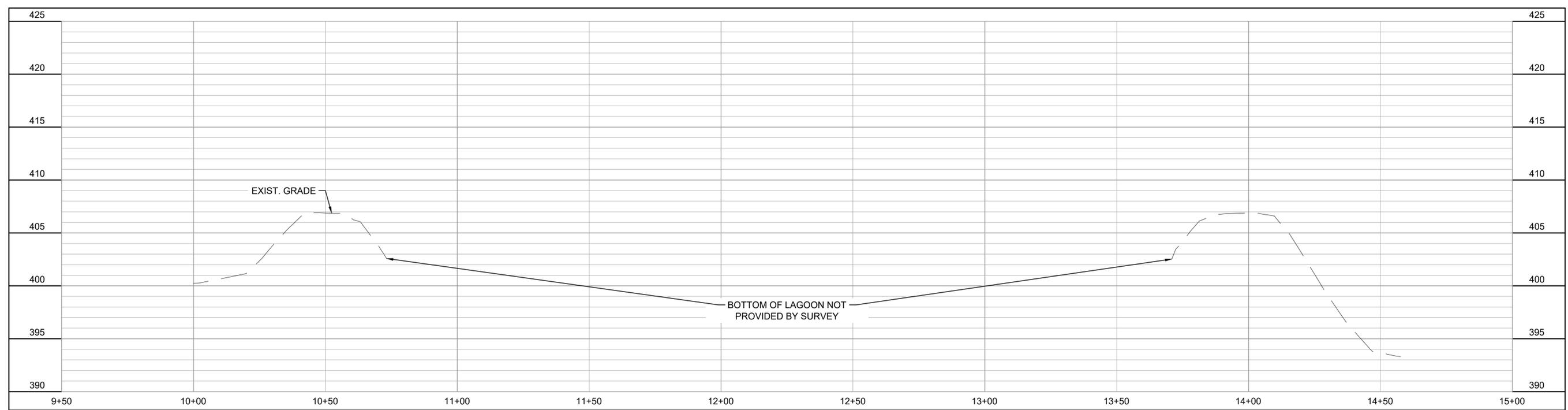
8/1/2024, 11:48:54 AM

1:36,112



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





LAGOON
 05-C101|05-C102 SCALE: NONE

**TPDES Permit Renewal Application
ATTACHMENT i: Size of the Sludge Lagoon**

Criteria	Value
Length (at top of lagoon), ft	320
Width (at top of lagoon), ft	230
Depth, ft	13
Area, acres	1.69
Capacity, ft ³	956,800
Capacity, gallons	7,157,390

TPDES PERMIT RENEWAL APPLICATION

ATTACHMENT j: Description of the method of controlling infiltration of groundwater and surface water from entering the site

- A synthetic membrane liner installed at the bottom and sides of the lagoon to prevent seepage.
- Native vegetation planted around the site to absorb and filter water.
- An underdrain with a leachate detection and collection system installed to intercept and divert groundwater.

TPDES PERMIT RENEWAL APPLICATION

ATTACHMENT k: Procedures to prevent the occurrence of nuisance conditions

- Implement regular monitoring and maintenance of sludge levels to prevent overflow and ensure optimal lagoon function.
- Establish a vegetation buffer around the lagoon to reduce the spread of odors and prevent the attraction of pests.
- Ensure proper drainage and control of stormwater to avoid water accumulation and the potential for nuisance conditions.
- Conduct routine inspections to identify and address any issues that could lead to nuisances, such as algae growth or the buildup of scum.



Bio-Aquatic Testing, Inc.



TCEQ TNi Accredited

City of Tyler
Westside WWTF
OUTFALL 001

24 Hr Acute Biomonitoring Report

89385

Daphnia pulex
Pimephales promelas

February 27, 2024

Approved by: Justin Reed
Lab director

Bio-Aquatic Testing, Inc. ♦ 2501 Mayes Rd. Ste. 100 ♦ Carrollton, Texas ♦ 75006

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Unless otherwise noted in the body of the report, all data reported in this document are in compliance with current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

***HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST**

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 24 Hr Acute

Client:	Tyler, City of	Sample:	001
Facility:	Westside WWTF	Laboratory Number:	89385
Permit No.	10653-001	Date:	February 27, 2024

Daphnia pulex and *Pimephales promelas* **passed** survival testing requirements.

SAMPLE COLLECTION: A composite effluent sample from the City of Tyler, Westside WWTF, was transported to Bio-Aquatic Testing on February 26, 2024. The effluent sample was collected from Outfall 001 by facility personnel.

The effluent sample was analyzed for total residual chlorine using the Hanna Ion Specific Meter #711 and contained <0.10 mg/L. Effluent and laboratory dilution water pH, temperature, salinity, and dissolved oxygen data were collected daily.

TEST PROCEDURES:

Daphnia pulex

EPA METHOD: 2021

The 24 Hr Acute *Daphnia pulex* test was initiated at 16:44 hours on February 27, 2024. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic laboratory water was also prepared. The test was set up with 30mL plastic cups containing 20mL of test solution. Each effluent concentration included five replicate cups with eight organisms in each cup. Test organisms were less than 24-hour old laboratory cultured neonates. The test proceeded for 24 hours. Data on survival was collected daily. A control of five replicate plastic cups containing eight organisms per cup in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 09:53 hours on February 28, 2024.

SURVIVAL:

Daphnia pulex

The *Daphnia pulex* survival data demonstrated >50% in the 100% effluent as compared to the control.

LOEC: Not Calculable (Q)

NOEC: 100% Effluent

TEST PROCEDURES:

Pimephales promelas

EPA METHOD: 2000

The 24 Hr Acute *Pimephales promelas* test was initiated at 15:25 hours on February 27, 2024. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic water was also prepared. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration consisted of five replicate chambers containing eight organisms each. Test organisms were laboratory cultured *P. promelas* one to fourteen days old, and all larvae used in each test are hatched within 24 hours of each other. The test proceeded for 24 hours, after which, data was collected. A control of five replicate cups of eight organisms each in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 13:45 hours on February 28, 2024.

SURVIVAL:

Pimephales promelas

The *Pimephales promelas* survival data demonstrated >50% in the 100% effluent as compared to the control.

LOEC: Not Calculable (Q)

NOEC: 100% Effluent

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

24 Hr Acute

Daphnia pulex

Lab ID: 89385

Client: Tyler, City of Westside WWTF

Test Temperature (oC): 25 ± 1

Permit Number: TPDES 10653-001

Photo Period: 16 hours light
8 hours dark

Sample Type: Composite **Outfall Name:** 001

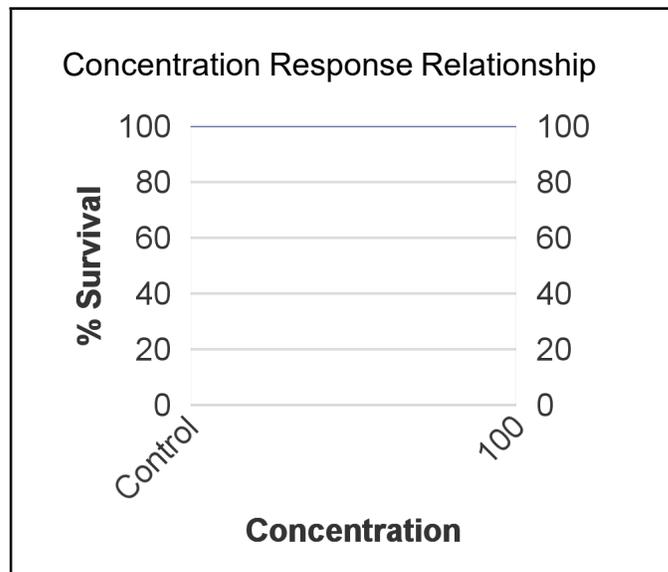
Begin Date: 2/27/2024

Receiving Water Name: Black Fork Creek

End Date: 2/28/2024

Test Start Time: Test End Time:

Effluent Concentration %	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate					Number Of Alive Per Replicate					
	2/27					2/28					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	8	8	8	8	8	100.0%



BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Daphnia pulex 24 Hr Acute

Client: Tyler, City of - Westside WWTF

Outfall Name 001 Lab ID: 89385

Sample Type Composite

TEST INSTRUCTIONS:

Date Test Started: 2-27-24 Time: 1644 Technician: MH

Date Test Ended: 2-28-24 Time: 953 Technician: SB

Culture No. : DP012824B

Units %	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.				
	A	B	C	D	E	A	B	C	D	E
Control	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8

Test Temperatures

	0Hr		24Hr	
	new	old	new	old
	Control	25.1	23.3	
100	 	 	 	
	 	 	 	
	 	 	 	
	 	 	 	
	 	 	 	
	 	 	 	
	 	 	 	
	 	 	 	
IR GUN ID #	021	021		

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

24 Hr Acute

Pimephales promelas

Lab ID: 89385

Client: Tyler, City of Westside WWTF

Test Temperature (oC): 25 ± 1

Permit Number: TPDES 10653-001

Photo Period: 16 hours light
8 hours dark

Sample Type: Composite **Outfall Name:** 001

Begin Date: 2/27/2024

Receiving Water Name: Black Fork Creek

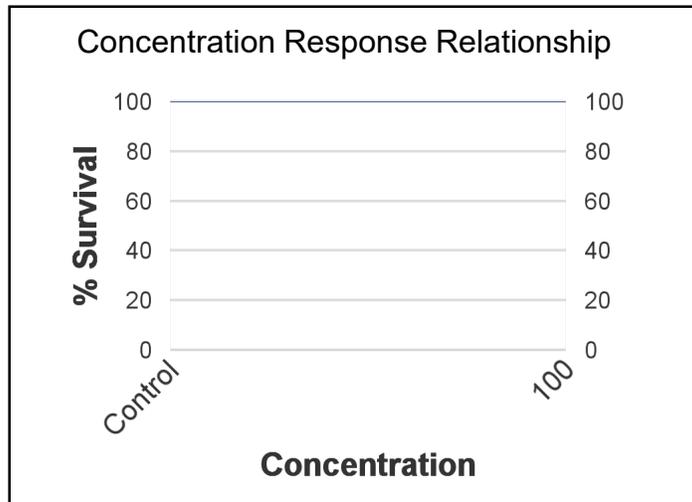
End Date: 2/28/2024

Test Start Time: 16:44

Test End Time: 09:53

SURVIVAL

Effluent Con. %	Number Of Alive Per Replicate										Avg% Surv.
	2/27					2/28					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	8	8	8	8	8	100.0%



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2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Pimephales promelas 24 Hr Acute

Client: Tyler, City of Westside WWTF

Lab ID: 89385

Outfall Name 001

Sample Type Composite

TEST INSTRUCTIONS:

Date Test Started: 2-27-24 Time: 1525 Technician: [Signature]
 Date Test Ended: 2-28-24 Time: 1345 Technician: SDT
 Culture No. : II-24-04AC

Units %	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.				
	A	B	C	D	E	A	B	C	D	E
Control	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	7, 8	6, 2	8	7,	

	Test Temperatures	
	0Hr	24Hr
	new	old
Control	<input checked="" type="checkbox"/>	25/5
100	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IR GUN ID #	<u>000</u>	<u>028</u>

APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. The fertilization organisms were calculated according to EPA-600-R-95-136 or EPA-600-R-12-022, dependent upon the species. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Mysidopsis bahia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The fertilization data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation or TST methodology may also be used.

Bio-Aquatic Testing, Inc.

FRESH WATER TEST SETUP FORM

Client: Tyler, City of

Permit 10653-001

Facility: Westside WWTF

Lab Number 89385

Outfall Name: 001

Number of samples 1

Dilution Water: Synthetic Lab

Receiving Water Name: Black Fork Creek

Dechlorinate Sample: _____

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	02/26/24	11:30	02/25/24	02/26/24	10:00	08:00

Type of Test(s)	
<u>Daphnia pulex</u>	<u>24 Hr Acute</u>
<u>Pimephales promelas</u>	<u>24 Hr Acute</u>

Dilution Water				
Sample #	Hardness		Alkalinity	
	As mg/L	CaCO ₃	as mg/L	CaCO ₃
1	144		54	

Start Sx # 1 Date: 2/27/2024

Renew Sx # _____ Date: _____

Test Start Date: _____ Test End Date: _____

2/27/2024

2/28/2024

Daphnia pulex Test Set Up: 5 Reps & 8 Organisms per Rep

Pimephales Test Set Up: 5 Reps & 8 Organism per Rep

Concentrations: 100 %

Test Chemistry on these dilutions: 100

Samples received by: Express Delivery UPS Next Day via Air Cargo DHL
 Federal Express the Client Bio-Aquatic personnel

Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Tyler, City of

Lab ID: 89385

Facility: Westside WWTF

Outfall: 001

Dilution Water(s): Synthetic Lab

Test Date: February 27, 2024

EFFLUENT PARAMETERS

Effluent Sample #	Received		Residual Cl ₂ (mg/L)	DeChlor (ml/L) ¹	Ammonia (mg/L)	Analyst Initials	Temp. Received
	Date	Time					
1	2/26/24	11:30	<0.10	N/A	1.2	JP	3.9

¹**Dechlorination Reagent:** 0.025 N Sodium Thiosulfate

Effluent Sample #	pH	DO (mg/L)	Hardness (mg/L CaCO ₃)	Alkalinity (mg/L CaCO ₃)	Conductivity (umhos/cm)	Analyst Initials
1	7.3	9.4	107	76	833	JP

DAILY RENEWAL CONDUCTIVITY**

Date	Sample #	Values are at Highest Dilution		Analyst	
		Specific Conductivity as umhos/cm	Salinity (ppt)		
2/27	Lab H2O	421	0.2	CG	
2/28	Lab H2O			MM/C	
2/29	Lab H2O				
3/1	Lab H2O				
3/2	Lab H2O				
3/3	Lab H2O				
3/4	Lab H2O				
2/27	OUTFALL*	1	883	0.5	CG
2/28	OUTFALL*				MM/C
2/29	OUTFALL*				
3/1	OUTFALL*				
3/2	OUTFALL*				
3/3	OUTFALL*				
3/4	OUTFALL*				

**Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

Analysis Methods: Chlorine: Hanna Colorimeter #HI711, Ammonia: Hanna Colorimeter #HI733, Hardness: Hanna Photometer #HI96735, Alkalinity: Hanna Colorimeter #HI775, pH, DO, Conductivity: Thermo Versa Star Benchtop Meter

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Daphnia pulex

Client: Tyler, City of

Lab ID: 89385

Facility: Westside WWTF

Dilution Water(s): Synthetic Lab

Outfall: 001

Test Begin Date: February 27, 2024

NR indicates that the test is non-renewal.

					Concentration								
ANALYST	DATE	TIME	SX#	UNIT	Control	100							
CG	2/27	Start	1	pH	8.2	7.5							
		25 ± 1		DO (mg/L)	8.1	8.4							
MM/CG	2/28	24 Hr	1	pH	8.2	8.1							
		25 ± 1		DO (mg/L)	8.6	8.9							
	2/29	Renew		pH									
				DO (mg/L)									
	3/1	48 Hr		pH									
		25 ± 1	DO (mg/L)										
	3/2	Renew		pH									
				DO (mg/L)									
	3/3	72 Hr		pH									
		25 ± 1	DO (mg/L)										
	3/4	Renew		pH									
				DO (mg/L)									
	3/5	96 Hr		pH									
		25 ± 1	DO (mg/L)										
	3/3	Renew		pH									
				DO (mg/L)									
	3/4	120 Hr		pH									
		25 ± 1	DO (mg/L)										
	3/5	Renew		pH									
				DO (mg/L)									
	3/5	144 Hr		pH									
		25 ± 1	DO (mg/L)										
	3/5	Renew		pH									
				DO (mg/L)									
	3/5	168 Hr		pH									
		25 ± 1	DO (mg/L)										

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Pimephales promelas

Client: Tyler, City of

Lab Number: 89385

Facility: Westside WWTF

Dilution Water(s): Synthetic Lab

Outfall: 001

Test Begin Date: February 27, 2024

NR indicates that the test is non-renewal.

Concentration

ANALYST	DATE	TIME	SX#	UNIT	Control	100						
CG	2/27	Start	1	pH	8.2	7.5						
		25 ± 1		DO (mg/L)	8.1	8.4						
		24 Hr		1	pH	7.9	8.0					
25 ± 1	DO (mg/L)	8.8	8.0									
Renew		pH										
		DO (mg/L)										
	2/29	48 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
		DO (mg/L)										
	3/1	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
		DO (mg/L)										
	3/2	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
		DO (mg/L)										
	3/3	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
		DO (mg/L)										
	3/4	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
		DO (mg/L)										
	3/5	168 Hr		pH								
		25 ± 1		DO (mg/L)								

Appendix B

Daphnia pulex

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

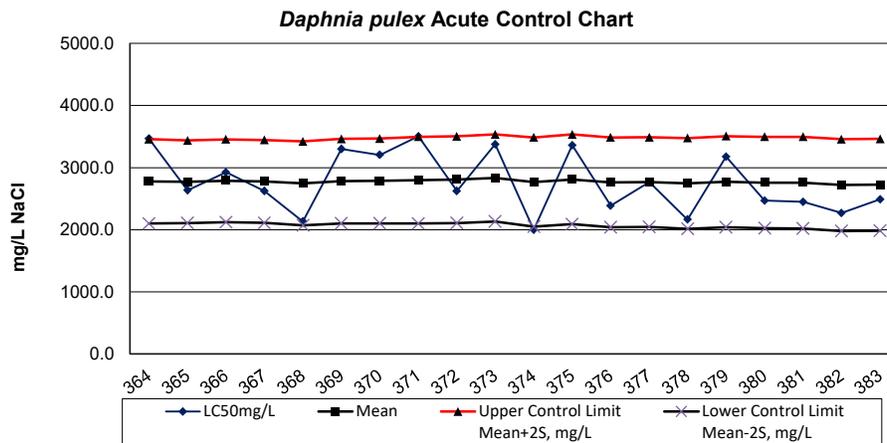
Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

ACUTE REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater						
CHEMICAL:	Sodium Chloride						
DURATION:	48 Hour Acute						
TEST NUMBER:	383						
PROJECT NUMBER:	91720						
START DATE:	1/31/2024						
START TIME:	16:06						
TOTAL NUMBER EXPOSED:	40 organisms per concentration						
CONCENTRATIONS (mg/L):	CON	250	500	1000	2000	3000	4000
NUMBER DEAD PER CONCENTRATION:	0	0	0	0	0	38	40
TEST METHODS:	As listed in EPA-821-R-02-012						
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber						
LC50:	2492.31	mg/L					
95% LOWER CONFIDENCE LIMITS:	2433.48	mg/L					
95% UPPER CONFIDENCE LIMITS:	2552.55	mg/L					

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
***Daphnia pulex* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
364	5/31/2022	83637	116620A	Trimmed Spearman-Kärber	3464.1	2778.9	679.7	3458.6	2099.2
365	6/28/2022	83724	014003A	Trimmed Spearman-Kärber	2634.8	2773.0	666.2	3439.2	2106.7
366	8/4/2022	83819	014003A	Trimmed Spearman-Kärber	2923.4	2788.6	666.9	3455.5	2121.7
367	8/30/2022	83864	20139	Trimmed Spearman-Kärber	2625.3	2777.8	666.4	3444.2	2111.3
368	9/27/2022	83950	20139	Trimmed Spearman-Kärber	2135.2	2745.8	674.8	3420.6	2071.0
369	10/28/2022	84022	8208603	Trimmed Spearman-Kärber	3300.5	2782.6	679.9	3462.5	2102.7
370	11/29/2022	84155	8208603	Trimmed Spearman-Kärber	3204.2	2785.1	682.8	3467.8	2102.3
371	12/27/2022	84763	8208603	Trimmed Spearman-Kärber	3504.7	2797.5	697.6	3495.1	2099.9
372	1/30/2023	85957	8208603	Trimmed Spearman-Kärber	2625.3	2805.5	698.3	3503.8	2107.1
373	2/28/2023	86333	8208603	Trimmed Spearman-Kärber	3375.2	2834.3	701.0	3535.3	2133.2
374	3/28/2023	86592	8208603	Trimmed Spearman-Kärber	2001.2	2770.5	717.0	3487.4	2053.5
375	4/25/2023	86823	8208603	Trimmed Spearman-Kärber	3358.4	2811.8	721.6	3533.4	2090.2
376	5/30/2023	87499	8208603	Trimmed Spearman-Kärber	2388.2	2762.9	723.0	3485.9	2039.8
377	7/26/2023	87924	8208603	Trimmed Spearman-Kärber	2765.4	2766.1	722.3	3488.4	2043.8
378	8/29/2023	88090	206801B	Trimmed Spearman-Kärber	2164.7	2745.2	732.0	3477.1	2013.2
379	9/28/2023	88263	206801B	Trimmed Spearman-Kärber	3176.6	2773.3	733.0	3506.3	2040.2
380	10/31/2023	88428	206801B	Trimmed Spearman-Kärber	2470.8	2759.7	735.7	3495.4	2024.1
381	11/28/2023	89558	307414	Trimmed Spearman-Kärber	2449.5	2758.8	738.7	3497.5	2020.1
382	12/26/2023	90354	307414	Trimmed Spearman-Kärber	2266.5	2719.9	739.2	3459.1	1980.6
383	1/31/2024	91720	307414	Trimmed Spearman-Kärber	2492.3	2723.9	739.6	3463.5	1984.3



Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

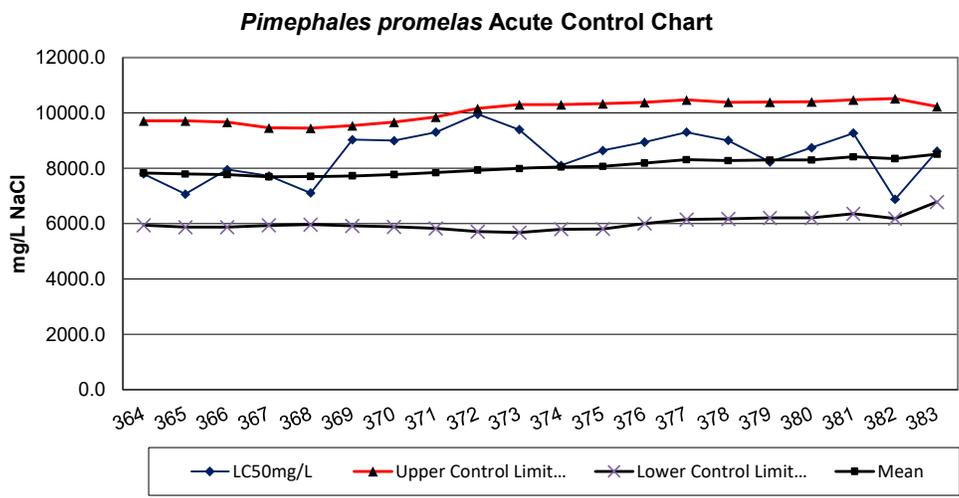
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ACUTE REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	383
PROJECT NUMBER:	91726
START DATE:	1/31/2024
START TIME:	15:07
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 2000 4000 6000 8000 10000 12000
NUMBER DEAD PER CONCENTRATION:	1 2 5 4 7 28 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	8619.09 mg/L
95% LOWER CONFIDENCE LIMITS:	7972.95 mg/L
95% UPPER CONFIDENCE LIMITS:	9317.59 mg/L

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
***Pimephales promelas* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
364	5/31/2022	83639	116620A	Trimmed Spearman-Kärber	7802.6	7828.4	1885.9	9714.3	5942.5
365	6/28/2022	83726	014003A	Trimmed Spearman-Kärber	7068.7	7792.0	1916.3	9708.3	5875.7
366	7/5/2022	83756 DOC	014003A	Trimmed Spearman-Kärber	7953.8	7770.5	1897.9	9668.4	5872.6
367	8/30/2022	83866	20139	Trimmed Spearman-Kärber	7719.1	7692.7	1760.7	9453.4	5932.0
368	9/27/2022	83952	20139	Trimmed Spearman-Kärber	7110.1	7702.5	1744.4	9447.0	5958.1
369	10/28/2022	84024	8208603	Trimmed Spearman-Kärber	9035.4	7728.9	1810.4	9539.2	5918.5
370	11/29/2022	84157	8208603	Trimmed Spearman-Kärber	8999.8	7774.6	1892.6	9667.2	5882.0
371	12/27/2022	84765	8208603	Trimmed Spearman-Kärber	9305.5	7840.3	2011.8	9852.0	5828.5
372	1/30/2023	85959	8208603	Trimmed Spearman-Kärber	9951.9	7937.8	2222.7	10160.5	5715.1
373	2/28/2023	86334	8208603	Trimmed Spearman-Kärber	9398.4	7987.1	2309.1	10296.2	5678.0
374	3/28/2023	86593	8208603	Trimmed Spearman-Kärber	8108.8	8049.3	2248.1	10297.4	5801.2
375	4/26/2023	86824	8208603	Trimmed Spearman-Kärber	8638.7	8073.8	2263.3	10337.1	5810.5
376	5/30/2023	87500	8208603	Trimmed Spearman-Kärber	8944.3	8190.3	2185.7	10375.9	6004.6
377	7/26/2023	87925	8208603	Trimmed Spearman-Kärber	9304.3	8306.4	2162.0	10468.4	6144.4
378	8/29/2023	88091	206801B	Trimmed Spearman-Kärber	9003.9	8278.8	2108.4	10387.3	6170.4
379	9/28/2023	88264	206801B	Trimmed Spearman-Kärber	8231.5	8300.7	2096.3	10397.0	6204.4
380	10/31/2023	88432	206801B	Trimmed Spearman-Kärber	8746.9	8302.1	2097.5	10399.6	6204.6
381	11/29/2023	89562	307414	Trimmed Spearman-Kärber	9267.3	8410.9	2058.4	10469.4	6352.5
382	12/26/2023	90360	307414	Trimmed Spearman-Kärber	6876.6	8351.5	2166.3	10517.8	6185.2
383	1/31/2024	91726	307414	Trimmed Spearman-Kärber	8619.1	8504.3	1723.9	10228.3	6780.4



APPENDIX C

LITERATURE REFERENCES

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CHAIN-OF-CUSTODY SHEETS

Appendix D



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

Client: Tyler, City of
 Facility: Westside VVWTF
 Permit No: 10653-001 Outfall: 001
 Client Contact: MIKE SCHAUB, SUPR.
 Client Phone: 903-581-9635

A. SCHEDULED TEST(S):

Chronic	Ceriodaphnia dubia
Chronic	Pimephales promelas

To Ship the
 1st Sample on: 2/26/2024

Dilution Series: 28 37 50 66 88

Include Semi-annual 24hr Acute Test? Yes

CHAIN OF CUSTODY

89384

Bio Only
 No Sample Left

Lab Id :

Please Fill Out C-O-C by Completing Sections A, B, & C. **P.O. No.:**

A.1 Check Sample # For Chronic and 48 Hour Acute Tests : First, Second, or Third.

Check the type of test(s) required, if different from the Scheduled Test(s) in "A":

<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour
C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	P. promelas (minnow)	M. bahia (shrimp)	M. beryllina (minnow)	Selenastrum (green algae)	

Notes: 1st Semi
 Include 1st Semi 24-hr Acute
 F/R 6/14/21 till permit renews
 Cerio (2x yr) Fathead (1x yr)

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To			
1 U.S.T.P. EFF	E	3/26/24	3/26/24	Comp	Richard Toranzo	1
2 U.S.T.P. R.S.	R.S.	3/26/24	3/26/24	Comp	Richard Toranzo	1
3						

Relinquished By:	Date	Time	Received By:	Date	Time
<i>[Signature]</i>	2/26/24	1900	Jim Payne	2-27-24	0900
3					

Bio-Aquatic Sample Login			Effluent Parameters:			Receiving Stream Parameters:		
Date: <u>2/27/24</u>	Tech: <u>JP</u>	IR Gun#: <u>021</u>	Temp: <u>3.9</u> (C)	pH: <u>7.3</u>	Hd: <u>107</u> mg/l (LR)	Temp: <u>3.8</u> (C)	pH: <u>7.4</u>	Hd: <u>83</u> mg/l (LR)
Time: <u>12:24</u>			Cl ₂ : <u>20.1</u> mg/l	DO: <u>9.4</u> mg/l	Alk: <u>76</u> mg/l (OK)	Cl ₂ : <u>20.1</u> mg/l	DO: <u>9.8</u> mg/l	Alk: <u>57</u> mg/l (OK)
			NH ₃ : <u>0.05</u> mg/l	Int. Salinity/Conductivity: <u>833</u> ppt/μS	Adj. Sal: <u>301</u> ppt/μS	NH ₃ : <u>0.05</u> mg/l	Int. Salinity/Conductivity: <u>301</u> ppt/μS	Adj. Sal: <u>301</u> ppt
			Condition: <u>Color metric 1.2 (RM3)</u>	Other: <u> </u>		Condition: <u>GOOD</u>	Other: <u> </u>	

REGULATORY AGENCY TABLES

Appendix E

Table 2 (Sheet 1 of 2)
BIOMONITORING REPORT

Daphnia pulex SURVIVAL TEST

Permittee: Tyler, City of - Westside WWTF
 Permit No.: 10653-001
 Outfall No.: 001

Dates and times
 Composites were collected: FROM: 2/25/2024 @ 10:00 TO: 2/26/2024 @ 08:00

Test Initiation: Time: 15:25 Date: 2/27/2024

Dilution Water Used: Receiving Water Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Daphnia pulex*

TIME	REPLICATE	EFFLUENT CONC. (%)	
		0%	100 %
24 HOUR	A	100	100
	B	100	100
	C	100	100
	D	100	100
	E	100	100
MEAN		100	100

Is the mean survival at 24 hours in the 100% effluent greater than 50%?

CRITICAL DILUTION (100 %) : YES NO

If yes is checked enter a '0' for Parameter TIE3D, otherwise enter '1'.

Enter the percent effluent corresponding to LC50 below:

24 Hour LC50 (*Daphnia pulex*) = >100 % Effluent

95 % Confidence Interval : *Q

Method of LC50 Calculation: Visual Inspection

Q* refers to a value that is not calculable



Bio-Aquatic Testing, Inc.



TCEQ TNI Accredited

City of Tyler
Westside WWTF
OUTFALL 001

Chronic Biomonitoring Report

89384

Ceriodaphnia dubia
Pimephales promelas

February 27, 2024

Approved by: Justin Reed
Lab director

Bio-Aquatic Testing, Inc. ♦ 2501 Mayes Rd. Ste. 100 ♦ Carrollton, Texas ♦ 75006

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Unless otherwise noted in the body of the report, all data reported in this document are in compliance with current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

***HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST**

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
Carrollton, Texas 75006
Tel: (972) 242-7750
Fax: (972) 242-7749

TOXICITY TEST REPORT - Chronic

Client:	Tyler, City of	Sample:	001
Facility:	Westside WWTF	Laboratory Number:	89384
Permit No.	10653-001	Date:	February 27, 2024

Ceriodaphnia dubia **passed** survival and reproduction testing requirements. *Pimephales promelas* **passed** survival and growth testing requirements when compared to the Performance Control (PCON). The True Control (TCON) was invalid because it did not meet the minimum test acceptability criteria.

SAMPLE COLLECTION: Composite effluent samples from the City of Tyler, Westside WWTF, were received on February 26, 2024, February 28, 2024, and March 01, 2024. Effluent samples were collected from Outfall 001 by facility personnel.

The effluent samples were analyzed for total residual chlorine using the Hanna Ion Specific Meter #711 and contained <0.10 mg/L, <0.10 mg/L, and <0.10 mg/L, respectively. Effluent and laboratory dilution water pH, temperature, and dissolved oxygen data were collected daily.

TEST PROCEDURES: EPA METHOD: 1002
Ceriodaphnia dubia The seven-day (three brood) Chronic *Ceriodaphnia dubia* survival and reproduction test was initiated at 13:50 hours on February 27, 2024. Five effluent concentrations of 28%, 37%, 50%, 66% and 88% were prepared using receiving water (Black Fork Creek) as dilution water. The test was set up with 30mL plastic cups containing 15mL of test solution or control dilution water. Each effluent concentration or control dilution water included ten replicate cups with one organism in each cup. The control was conducted concurrently with the test. Test organisms were less than 24-hour old laboratory cultured neonates. Neonates were introduced into the test solutions using a blocking design. The test was renewed daily with newly prepared solutions. Food consisting of a half-milliliter suspension of the green algae, *Selenastrum capricornutum*, and YTC was added to the test solutions each day. The test proceeded for seven days or until 60% of the females in the control had three broods. Data on survival and number of young produced per female were collected daily. The test ended at 09:53 hours on March 06, 2024. Survival and reproduction data were statistically (p=0.05) analyzed according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL:

Ceriodaphnia dubia

Fisher's Exact test on *Ceriodaphnia dubia* survival test data demonstrated no statistically significant differences between the control and any of the effluent concentrations tested.

LOEC: Not Calculable (Q)

NOEC: 88% Effluent

REPRODUCTION:

Ceriodaphnia dubia

The *Ceriodaphnia dubia* reproduction data were normally distributed at the alpha level of 0.01 (13.277) using the Chi-square test for normality. Reproduction data were shown to be homogeneous using Bartlett's test at the alpha level of 0.01 (15.09) without data transformations. Using ANOVA and Dunnett's test (with Bonferroni adjustment as appropriate for Sub-Lethality) on *Ceriodaphnia dubia* reproduction data demonstrated no statistically significant differences between the control and any of the effluent concentrations tested.

LOEC: Not Calculable (Q)

NOEC: 88% Effluent

TEST PROCEDURES:

Pimephales promelas

EPA METHOD: 1000

The seven-day Chronic *Pimephales promelas* survival and growth test was initiated at 17:09 hours on February 27, 2024. Five effluent concentrations of 28%, 37%, 50%, 66% and 88% were prepared using receiving water (Black Fork Creek) as dilution water. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration consisted of five replicate chambers containing eight organisms each, giving a total of 40 (forty) per treatment. The control test was conducted concurrently with the test. Test organisms were laboratory-cultured *Pimephales promelas* larvae less than 24-hours old. The number of surviving larvae and water quality parameters in the old test solutions were recorded after each 24-hour period. The test was renewed daily with fresh solutions. Surviving larvae in each test chamber were fed freshly hatched brine shrimp two times per day. The test proceeded for seven days.

At the end of the test, all organisms were sacrificed, dried, and weighed. Data on surviving organisms and water quality were collected. The test ended at 05:40 hours on March 05, 2024. Survival and growth (weight) were statistically ($p=0.05$) analyzed according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL:

Pimephales promelas

The non-parametric Steel's Many-One Rank test performed on *Pimephales promelas* survival data demonstrated no statistically significant differences between the Performance Control (PCON) and any of the effluent concentrations tested. The True Control (TCON) was invalid because it did not meet the minimum test acceptability criteria.

LOEC: Not Calculable (Q)

NOEC: 88% Effluent

GROWTH:

Pimephales promelas

The *Pimephales promelas* growth data were normally distributed at the alpha level of 0.01 (0.900) using Shapiro Wilk's test for normality. Growth data were shown to be homogeneous using Bartlett's test at the alpha level of 0.01 (15.09) without data transformations. Using ANOVA and Dunnett's test on *Pimephales promelas* growth data demonstrated no statistically significant differences between the Performance Control and any of the effluent concentrations tested. The True Control (TCON) was invalid because it did not meet the minimum test acceptability criteria.

LOEC: Not Calculable (Q)

NOEC: 88% Effluent

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

Chronic

Ceriodaphnia dubia

Client: Tyler, City of Westside WWTF

Lab ID: 89384

Permit Number: TPDES 10653-001

Test Temperature (oC): 25 ± 1

Sample Type: Composite

Photo Period: 16 Hours Light, 8 Hours Dark

Outfall Name: 001

Begin Date: 2/27/2024

Receiving Water Name: Black Fork Creek

End Date: 3/6/2024

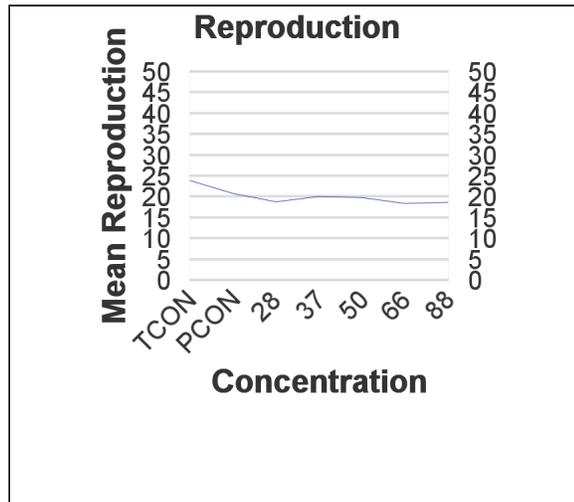
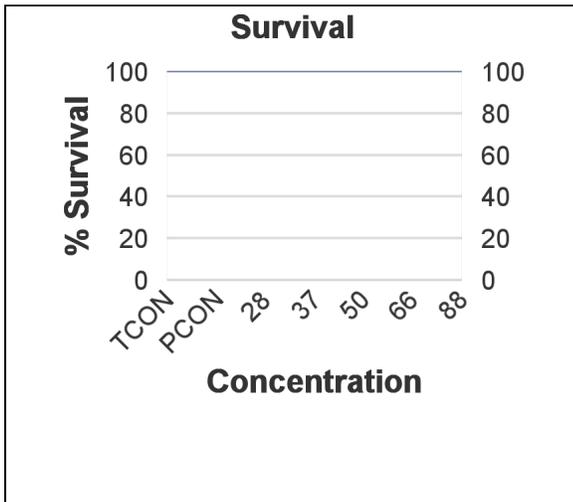
Test Start Time: 13:50

Test End Time: 09:53

SURVIVAL AND REPRODUCTION TABLE

Replicate	TCON	PCON	28%	37%	50%	66%	88%
1	15	22	16	18	13	17	22
2	30	23	18	27	16	19	18
3	18	21	15	22	19	14	19
4	28	15	19	24	15	17	14
5	15	16	16	19	16	14	15
6	15	16	19	19	E	23	13
7	28	27	20	22	26	20	12
8	35	24	21	20	23	20	29
9	27	20	26	13	27	26	27
10	28	24	E	17	24	14	E
Surv. Mean	23.9	20.8	18.8	20.1	19.8	18.4	18.7
C.V%	30.9	19.3	17.7	19.4	26.2	21.9	32.7
Total Mean	23.9	20.8	18.9	20.1	19.9	18.4	18.8
Var	54.766	16.177	11.111	15.211	27.111	16.266	37.444
stddev	7.4	4.022	3.333	3.9	5.206	4.033	6.119
Max	35	27	26	27	27	26	29
Min	15	15	15	13	13	14	12

Concentration Response Relationships



BIO-AQUATIC TESTING, INC.

Survival and Reproduction

TCON

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	4	3	A	A	A	A	3	4	A
3/2	4	A	A	3	4	3	5	A	A	6
3/3	10	10	6	10	A	A	9	A	10	9
3/4	A	A	A	A	A	A	A	16	A	A
	14	14	9	13	4	3	14	19	14	15
3/5	A	16	A	15	11	12	14	16	13	A
	14	30	9	28	15	15	28	35	27	15
3/6	1	A	9	A	A	A	A	A	A	13
	15	30	18	28	15	15	28	35	27	28

Mean:	23.90	Coefficient of variation:	30.90
Var.	54.766	Max	35
Std.Dev.	7.400	Min	15

PCON

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	A	A	A	A	A	5	A	5	A
3/2	4	6	5	A	3	4	A	4	A	4
3/3	A	A	A	A	A	A	A	A	A	A
3/4	3	A	5	A	A	A	8	7	A	4
	7	6	10	0	3	4	13	11	5	8
3/5	15	17	11	15	13	12	14	13	15	A
	22	23	21	15	16	16	27	24	20	8
3/6	A	A	A	A	A	A	A	A	A	16
	22	23	21	15	16	16	27	24	20	24

Mean:	20.8	Coefficient of variation:	19.30
Var.	16.177	Max	27
Std.Dev.	4.022	Min	15

28

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	A	A	A	A	A	5	A	4	E
3/2	A	4	3	4	3	4	3	5	A	E
3/3	3	A	A	A	A	A	A	A	6	E
3/4	A	A	A	A	A	A	A	A	A	E
	3	4	3	4	3	4	8	5	10	
3/5	13	14	12	15	13	15	A	16	16	E
	16	18	15	19	16	19	8	21	26	
3/6	A	A	A	A	A	A	12	A	A	E
	16	18	15	19	16	19	20	21	26	

Mean:	18.8	Coefficient of variation:	17.70
Var.	11.111	Max	26
Std.Dev.	3.333	Min	15

37

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	A	A	A	A	A	A	A	3	A
3/2	3	4	A	A	4	3	5	4	A	3
3/3	A	6	A	9	A	6	A	A	10	A
3/4	A	A	6	A	A	A	A	A	A	A
	3	10	6	9	4	9	5	4	13	3
3/5	15	17	16	15	15	10	17	16	A	A
	18	27	22	24	19	19	22	20	13	3
3/6	A	A	A	A	A	A	A	A	A	14
	18	27	22	24	19	19	22	20	13	17

Mean:	20.1	Coefficient of variation:	19.40
Var.	15.211	Max	27
Std.Dev.	3.900	Min	13

50

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	3	A	A	A	A	4	A	5	A
3/2	A	A	3	3	3	4	A	5	A	2
3/3	A	4	A	A	A	E	A	A	8	9
3/4	A	A	A	2	A	E	6	A	A	A
	0	7	3	5	3		10	5	13	11
3/5	13	9	16	A	13	E	16	18	14	A
	13	16	19	5	16		26	23	27	11
3/6	A	A	A	10	A	E	A	A	A	13
	13	16	19	15	16		26	23	27	24

Mean:	19.8	Coefficient of variation:	26.20
Var.	27.111	Max	27
Std.Dev.	5.206	Min	13

66

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	A	A	A	A	A	5	A	A	A
3/2	A	A	3	A	3	7	A	6	6	3
3/3	7	5	A	A	A	A	A	8	7	A
3/4	A	A	A	A	A	A	A	A	A	A
	7	5	3	0	3	7	5	14	13	3
3/5	10	14	A	17	11	16	15	6	13	A
	17	19	3	17	14	23	20	20	26	3
3/6	A	A	11	A	A	A	A	A	A	11
	17	19	14	17	14	23	20	20	26	14

Mean:	18.4	Coefficient of variation:	21.9
Var.	16.266	Max	26
Std.Dev.	4.033	Min	14

BIO-AQUATIC TESTING, INC.

Survival and Reproduction

88

Date	1	2	3	4	5	6	7	8	9	10
2/28	A	A	A	A	A	A	A	A	A	A
2/29	A	A	A	A	A	A	A	A	A	A
3/1	A	A	A	3	A	A	5	A	4	E
3/2	3	3	5	A	4	5	A	5	A	E
3/3	6	A	A	A	A	A	A	7	6	E
3/4	A	A	A	A	A	A	A	A	A	E
	9	3	5	3	4	5	5	12	10	
3/5	13	A	14	11	11	8	7	17	A	E
	22	3	19	14	15	13	12	29	10	
3/6	A	15	A	A	A	A	A	A	17	E
	22	18	19	14	15	13	12	29	27	

Mean:	18.7	Coefficient of variation:	32.70
Var.	37.444	Max	29
Std.Dev.	6.119	Min	12

Date	1	2	3	4	5	6	7	8	9	10
2/28										
2/29										
3/1										
3/2										
3/3										
3/4										
3/5										
3/6										

Mean:		Coefficient of variation:	
Var.		Max	
Std.Dev.		Min	

BIO-AQUATIC TESTING, INC.

Chronic CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Client: Tyler, City of - Westside WWTF Lab ID: 89384 Culture No.: Bio 022124B

TEST INSTRUCTIONS: Include 24-hr Acute

ORGANISMS ADDED: Date: 2-27-24 Time: 1350 Technician: MH

Photo Period 16hr Light/8hr dark

Dilution: TCON

RANDOMIZATION:

RS-10 3

DATE/TIME/ TECHNICIAN	1	2	3	4	5	6	7	8	9	10
24Hr 02-28-24 MW 1426	A									A
48Hr 2-29-24 SB 1130	A									A
72Hr 03-01-24 MW 1320	A	4	3	A			A	3	4	A
96Hr 3-2-24 NB 12:01	4	A	A	3	4	3	5	A	A	6
5 days 3-3-24 SB 1128	10	10	6	10	A	A	9	8	10	9
6 days 3-4-24 SB 952	A	A	A	A	A	A	A	8	A	A
7 days 03-05-24 MW 1010	A	6	A	5	11	12	14	16	13	A
8 days 3-6-24 SB 953	A	A	9	A	A	A	A	A	A	13

* Ceriod has many other smaller organism attached to it - mw

Dilution: PCON

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A					A	5	A	5	A
96Hr	4	6	5	A	3	4	A	4	A	4
5 days	A	A	A	A	A	A	A	A	A	A
6 days	3	A	5	A	A	A	8	7	A	4
7 days	15	17	11	15	13	12	14	13	18	A
8 days	A	A	A	A	A	A	A	A	A	16

Code: Cells in numbered columns indicate daily survival and reproduction: "A" means adult alive and no young produced, a number means adult alive and that number of young produced, "D" followed by a zero means adult dead and no young produced, "D" followed by a number means adult dead and that number of young produced. "E" indicates toss out due to experimenter error. Lined through spaces preceded by a number or letter represent the same number or letter without a preceding number or letter indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

Chronic CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Client: Tyler, City of - Westside WWTF Lab ID: 89384 Culture No.: _____

TEST INSTRUCTIONS: Include 24-hr Acute

Dilution: 28 %

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A	A	A	A	A	A	5	A	4	E
96Hr	A	4	3	4	3	4	3	5	A	1
5 days	3	A	A	A	A	A	A	A	A	6
6 days	A	A	A	A	A	A	A	A	A	
7 days	3	4	12	15	13	5	A	16	16	
8 days	A	A	A	A	A	A	A	A	A	A

E = empty - mv
** Cerio has many other smaller organisms attached to it - mv*

Dilution: 37 %

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A					A	A	A	3	A
96Hr	3	4	A	A	4	3	3	4	A	3
5 days	A	6	A	9	A	6	A	A	10	A
6 days	A	A	6	A	A	A	A	A	A	A
7 days	15	17	16	15	15	10	17	16	A	A
8 days	A	A	A	A	A	A	A	A	A	1/3

Code: Cells in numbered columns indicate daily survival and reproduction: "A" means adult alive and no young produced, a number means adult alive and that number of young produced, "D" followed by a zero means adult dead and no young produced, "D" followed by a number means adult dead and that number of young produced. "E" indicates toss out due to experimenter error. Lined through spaces preceded by a number or letter represent the same number. Lined spaces without a preceding number or letter indicate unused or not available.

BIO-AQUATIC TESTING, INC.

Chronic CERIODAPHНИЯ DUBIA SURVIVAL AND REPRODUCTION

Client: Tyler, City of - Westside WWTF Lab ID: 89384 Culture No.: _____

TEST INSTRUCTIONS: Include 24-hr Acute

Dilution: 50 %

DE - empty sm

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A	3	A			4	A	5	A	
96Hr	A	A	3	3	3	4	A	5	A	A
5 days	A	4	A	A	A	E	A	A	8	9
6 days	A	A	A	A	A	6	A	A	A	
7 days	3	9	16	A	13	16	18	A	A	
8 days	A	A	A	10	A	A	A	A	A	2/11

Dilution: 66 %

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A					A	5	A	A	A
96Hr	A	A	3	A	3	7	A	6	5	3
5 days	7	5	A	A	A	A	8	7	A	
6 days	A	A	A	A	A	A	A	A	A	
7 days	10	14	A	17	11	16	15	6	13	A
8 days	A	A	10	A	A	A	A	A	A	11

Code: Cells in numbered columns indicate daily survival and reproduction: "A" means adult alive and no young produced, a number means adult alive and that number of young produced, "D" followed by a zero means adult dead and no young produced, "D" followed by a number means adult dead and that number of young produced. "E" indicates toss out due to experimenter error. Lined through spaces preceded by a number or letter represent the same number. Lined spaces without a preceding number or letter indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

Chronic CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Client: Tyler, City of - Westside WWTF Lab ID: 89384 Culture No.: _____

TEST INSTRUCTIONS: Include 24-hr Acute

Dilution: 88 %

	1	2	3	4	5	6	7	8	9	10
24Hr	A									A
48Hr	A									A
72Hr	A	A	A	3	A	A	5	A	4	E
96Hr	3	3 ²	3 ²	A	4	5	A	5	A	1
5 days	6	A	A	A	A	A	A	7	6	1
6 days	A	A	A	A	A	A	A	A	A	1
7 days	3	A	4	1	1	1	8	7	7	A
8 days	A	2	A	A	A	A	A	A	7	1

E organism in cup was not one of our ceriod. m*

Dilution: _____

	1	2	3	4	5	6	7	8	9	10
24Hr										
48Hr										
72Hr										
96Hr										
5 days										
6 days										
7 days										
8 days										

Code: Cells in numbered columns indicate daily survival and reproduction: "A" means adult alive and no young produced, a number means adult alive and that number of young produced, "D" followed by a zero means adult dead and no young produced, "D" followed by a number means adult dead and that number of young produced. "E" indicates toss out due to experimenter error. Lined through spaces preceded by a number or letter represent the same number or letter indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

Chronic CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Client: Tyler, City of - Westside WWTF Lab ID: 89384 Culture No.:

TEST INSTRUCTIONS: Include 24-hr Acute

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr		5 days		6 days		7 days
	new	old / new		old / new		old / new		old / new		old / new		old / new		old
TCON	24.9	25.5	25.3	25.0	25.0	25.6	25.1	25.8	25.9	25.3	25.0	25.4	25.0	25.3
PCON	25.0													
28	24.9													
37														
50														
66														
88														
TIME/DATE TECH	2-27-24 MH 1350	02-28-24 MW 1426		2-29-24 808 1130		03-01-24 MW 1320		3-2-24 NB 12:06		3-3-24 813 1106		3-4-24 819 952		03-05-24 MW 1010
IR GUN ID #	021	012		021		012		012		021		021		012

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

Chronic *Pimephales promelas*

Client: Tyler, City of Westside WWTF

Lab ID: 89384

Permit Number: TPDES 10653-001

Test Temperature (oC): 25 ± 1

Outfall Name: 001 **Sample Type:** Composite

Photo Period: 16 Hours Light
8 Hours Dark

Receiving Water Name: Black Fork Creek

Test Start Time:

Test End Time:

Begin Date: 2/27/2024

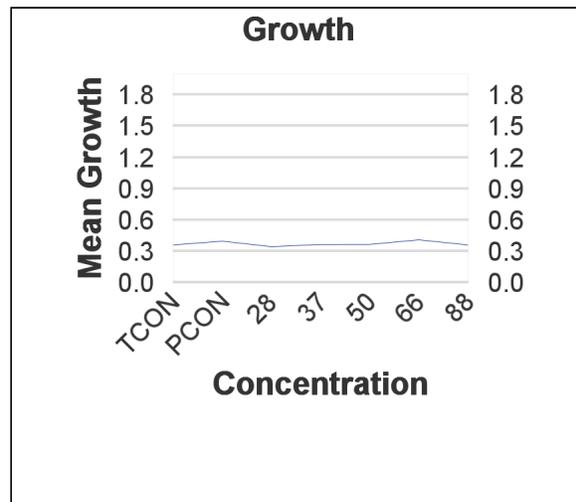
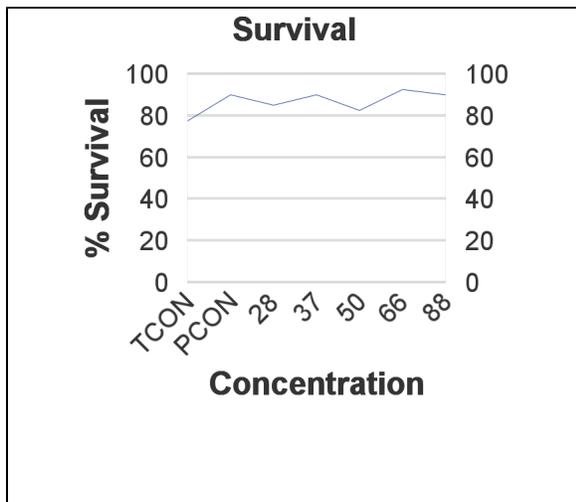
End Date: 3/5/2024

SURVIVAL

Effluent Concentration	Number Of Alive									Avg% Surv.
	2/27	2/28	2/29	3/1	3/2	3/3	3/4	3/5		
TCON	A	8	8	8	7	7	7	6	6	77.5%
	B	8	8	8	8	8	8	6	6	
	C	8	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	8	
	E	8	8	8	8	6	5	5	3	
PCON	A	8	8	8	8	8	8	8	8	90.0%
	B	8	8	8	8	8	7	7	7	
	C	8	8	8	8	8	6	6	6	
	D	8	8	8	8	8	8	8	8	
	E	8	8	8	8	8	8	8	7	
28	A	8	8	8	7	7	7	6	6	85.0%
	B	8	8	8	8	8	8	8	7	
	C	8	8	8	7	6	6	6	6	
	D	8	8	8	7	7	7	7	7	
	E	8	8	8	8	8	8	8	8	
37	A	8	8	8	8	8	8	8	8	90.0%
	B	8	8	8	7	7	7	7	7	
	C	8	8	8	8	8	8	8	7	
	D	8	8	8	8	8	8	8	8	
	E	8	8	8	7	7	7	6	6	

Effluent Concentration	Number Of Alive								Avg% Surv.	
	2/27	2/28	2/29	3/1	3/2	3/3	3/4	3/5		
50	A	8	8	8	7	6	6	6	6	82.5%
	B	8	8	8	8	8	8	8	7	
	C	8	8	8	7	7	7	7	7	
	D	8	8	8	7	7	7	7	7	
	E	8	8	8	8	7	7	7	6	
66	A	8	8	8	8	8	8	8	8	92.5%
	B	8	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	7	
	D	8	8	8	6	6	6	6	6	
	E	8	8	8	8	8	8	8	8	
88	A	8	8	8	7	7	7	7	7	90.0%
	B	8	8	8	8	8	8	8	8	
	C	8	8	8	8	7	7	7	7	
	D	8	8	8	7	7	7	7	6	
	E	8	8	8	8	8	8	8	8	

Concentration Response Relationships



BIO-AQUATIC TESTING, INC.

Chronic Pimephales promelas SURVIVAL Lab ID: 89384

Client: Tyler, City of Facility: Westside WWTF Outfall: 001
Sample Type: Composite

TEST INSTRUCTIONS: Include 24-hr Acute

Culture No.: PT-24-057B Photo Period: 16hr light, 8hr dark RANDOMIZATION: RS-5 1

Dilution:		TCON					PCON					28					37				
DATE/TIME/TECHNICIAN		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
0Hr	2-27-24 1709NIM	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---
24Hr	2-28-24 SPT0630	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---
48Hr	2-29-24 SPT0510	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---	8	---	---	---	---
72Hr	3-1-24 SPT0710	7 ₁	8	---	---	---	8	---	---	---	---	7 ₁	8	7 ₁	7 ₁	8	8	7 ₁	8	8	7 ₁
96Hr	3-2-24 SPT0750	7	8	8	8	6 ₂	8	---	---	---	---	7	8	6 ₁	7	8	8	7	8	8	7
5 days	3-3-24 1135 AR	7	8	---	---	5 ₁	8	7 ₁	6 ₂	8	8	7	8	6	7	8	8	7	8	8	7
6 days	3-4-24 0827 AR	6 ₁	6 ₂	8	8	5	8	7	6	8	8	6 ₁	8	6	7	8	8	7	5	8	6 ₁
7 days	3-5-24 SPT0540	6	6	8	8	3 ₂	8	7	6	8	7 ₁	6	7 ₁	6	7	8	8	7	7 ₁	8	6

Dilution:		50					66					88									
		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
0Hr		8	---	---	---	---	8	---	---	---	---	8	---	---	---	---					
24Hr		8	---	---	---	---	8	---	---	---	---	8	---	---	---	---					
48Hr		8	---	---	---	---	8	---	---	---	---	8	---	---	---	---					
72Hr		7 ₁	8	7 ₁	7 ₁	6	8	8	8	6 ₂	8	7 ₁	8	8	7 ₁	8					
96Hr		6 ₁	8	7	7	7 ₁	8	---	---	6	8	7	8	7 ₁	7	8					
5 days		6	8	7	---	---	8	---	---	6	8	7	8	7	7	8					
6 days		6	8	7	---	---	8	---	---	6	8	7	8	7	7	8					
7 days		6	7 ₁	7	7	6 ₁	8	8	7 ₁	6	8	7	8	7	6 ₁	8					

BIO-AQUATIC TESTING, INC.

Chronic Pimephales promelas SURVIVAL Lab ID: **89384**

Client: Tyler, City of Facility Westside WWTF Outfall: 001
 Sample Type: Composite

TEST INSTRUCTIONS: Include 24-hr Acute

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr		5 days		6 days		7 days
	new	old / new		old / new		old / new		old / new		old / new		old / new		old
TCON	25.8	25.8	25.3	26.1	25.5	25.6	24.8	25.7	25.2	25.6	24.3	25.2	24.1	25.4
PCON	/	/	/	/	/	/	/	/	/	/	/	/	/	/
28	/	/	/	/	/	/	/	/	/	/	/	/	/	/
37	/	/	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	/	/	/	/	/
66	/	/	/	/	/	/	/	/	/	/	/	/	/	/
88	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/	/	/	/	/	/	/
TIME/DATE TECH	2-27-24 1700 MM	2-28-24 SPT 0630		2-29-24 SPT 0500		3-1-24 SPT 0710		3-2-24 SPT 0750		3-3-24 1135 AR		3-4-24 0827 AR		3-5-24 SPT 0500
IR GUN ID #	020	028		028		028		020		020		020		028

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

Chronic Pimephales promelas

Client: Tyler, City of Westside WWTF

Lab ID: 89384

Permit Number: 10653-001

Sample Type: Composite Outfall Name: 001

Receiving Water Name: Black Fork Creek

True Control

Performance Control

28

37

	ON	SN	Wt.	Avg.	SN Avg.
A	8	6	2.499	0.312	0.417
B	8	6	2.879	0.360	0.480
C	8	8	3.871	0.484	0.484
D	8	8	3.473	0.434	0.434
E	8	3	1.656	0.207	0.552

	ON	Wt.	Avg.
A	8	3.328	0.416
B	8	3.077	0.385
C	8	2.873	0.359
D	8	3.822	0.478
E	8	2.710	0.339

	ON	Wt.	Avg.
A	8	3.009	0.376
B	8	2.212	0.277
C	8	2.515	0.314
D	8	2.556	0.320
E	8	3.411	0.426

	ON	Wt.	Avg.
A	8	3.520	0.440
B	8	2.801	0.350
C	8	3.026	0.378
D	8	3.152	0.394
E	8	2.053	0.257

Mean	C.V. %
0.359	30.0

Mean	C.V. %
0.395	13.8

Mean	C.V. %
0.343	17.2

Mean	C.V. %
0.364	18.7

SN Mean	SN C.V. %
0.473	11.1

50

66

88

	ON	Wt.	Avg.
A	8	3.070	0.384
B	8	3.073	0.384
C	8	3.092	0.387
D	8	3.074	0.384
E	8	2.271	0.284

	ON	Wt.	Avg.
A	8	3.664	0.458
B	8	3.470	0.434
C	8	3.009	0.376
D	8	2.565	0.321
E	8	3.603	0.450

	ON	Wt.	Avg.
A	8	2.948	0.369
B	8	2.810	0.351
C	8	2.995	0.374
D	8	2.515	0.314
E	8	3.103	0.388

	ON	Wt.	Avg.
A			
B			
C			
D			
E			

Mean	C.V. %
0.365	12.4

Mean	C.V. %
0.408	14.3

Mean	C.V. %
0.359	7.9

Mean	C.V. %

Note: ON stands for original number per replicate, while SN refers to the number surviving after test completion.

BIO-AQUATIC TESTING, INC. TOXICITY TEST

Chronic

Pimephales promelas

Lab ID: **89384**

Client: Tyler, City of - Westside WWTF

Balance: Radwag BAL-007

Begin Date: 2/27/2024

End Date: 3/5/2024

Organism: Pimephales promelas

Analyst: Rance Parrott
Weigh Date: 3/12/24

Date/Time placed in Oven: 3/5/24 1400
Date/Time removed from Oven: 3/6/24 1400

TCON

	Qty.	Wt.
A	6	2.499
B	6	2.879
C	8	3.871
D	8	3.473
E	3	1.656

PCON

	Qty.	Wt.
A	8	3.328
B	7	3.077
C	6	2.873
D	8	3.822
E	7	2.710

28 %

	Qty.	Wt.
A	6	3.009
B	7	2.212
C	6	2.515
D	7	2.556
E	8	3.411

37 %

	Qty.	Wt.
A	8	3.520
B	7	2.801
C	7	3.026
D	8	3.152
E	6	2.053

50 %

	Qty.	Wt.
A	6	3.070
B	7	3.073
C	7	3.092
D	7	3.074
E	6	2.271

66 %

	Qty.	Wt.
A	8	3.664
B	8	3.470
C	7	3.009
D	6	2.565
E	8	3.603

88 %

	Qty.	Wt.
A	7	2.948
B	8	2.810
C	7	2.995
D	6	2.515
E	8	3.103

Qty. Wt.

	Qty.	Wt.
A		
B		
C		
D		
E		

Qty. Wt.

	Qty.	Wt.
A		
B		
C		
D		
E		

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. The fertilization organisms were calculated according to EPA-600-R-95-136 or EPA-600-R-12-022, dependent upon the species. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Mysidopsis bahia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The fertilization data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation or TST methodology may also be used.

cerio repro
File: 89384.cdr Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.819	13.794	21.774	13.794	3.819
OBSERVED	1	20	18	14	4

Calculated Chi-Square goodness of fit test statistic = 5.5388
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

cerio repro
File: 89384.cdr Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 7.63

Bartlett's test using average degrees of freedom
Calculated B2 statistic = 7.53
Based on average replicate size of 8.50

Table Chi-square value = 15.09 (alpha = 0.01, df = 5)
Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.
Data PASS B2 homogeneity test at 0.01 level. Continue analysis.

cerio repro
File: 89384.cdr Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	202.396	40.479	1.494

Within (Error) 51 1381.533 27.089

 Total 56 1583.930

Critical F value = 2.45 (0.05,5,40)

Since F < Critical F FAIL TO REJECT Ho: All equal

cerio repro

File: 89384.cdr Transform: NO TRANSFORMATION

BONFERRONI t-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	tcon	23.900	23.900		
2	28	18.889	18.889	2.095	
3	37	20.100	20.100	1.633	
4	50	19.889	19.889	1.677	
5	66	18.400	18.400	2.363	
6	88	18.778	18.778	2.142	

Bonferroni t table value = 2.40 (1 Tailed Value, P=0.05, df=50,5)

cerio repro

File: 89384.cdr Transform: NO TRANSFORMATION

BONFERRONI t-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	tcon	10			
2	28	9	5.747	24.0	5.011
3	37	10	5.594	23.4	3.800
4	50	9	5.747	24.0	4.011
5	66	10	5.594	23.4	5.500
6	88	9	5.747	24.0	5.122

fathead growth

File: 89384.ppg Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.069

W = 0.961

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data PASS normality test at P=0.01 level. Continue analysis.

fathead growth

File: 89384.ppg Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B1 statistic = 2.78

Table Chi-square value = 15.09 (alpha = 0.01, df = 5)

Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

fathead growth

File: 89384.ppg Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.015	0.003	1.036
Within (Error)	24	0.069	0.003	
Total	29	0.084		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F FAIL TO REJECT Ho: All equal

fathead growth
 File: 89384.ppg

Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	pcon	0.395	0.395		
2	28	0.343	0.343	1.557	
3	37	0.364	0.364	0.932	
4	50	0.365	0.365	0.908	
5	66	0.408	0.408	-0.366	
6	88	0.359	0.359	1.068	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

fathead growth
 File: 89384.ppg

Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	pcon	5			
2	28	5	0.080	20.2	0.053
3	37	5	0.080	20.2	0.032
4	50	5	0.080	20.2	0.031
5	66	5	0.080	20.2	-0.012
6	88	5	0.080	20.2	0.036

Bio-Aquatic Testing, Inc.

FRESH WATER TEST SETUP FORM

Client: Tyler, City of

Permit 10653-001

Facility: Westside WWTF

Lab Number 89384

Outfall Name: 001

Number of samples 3

Dilution Water: Receiving Stream

Receiving Water Name: Black Fork Creek

Dechlorinate Sample: _____

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	02/26/24	11:30	02/25/24	02/26/24	10:00	08:00
2	02/28/24	09:00	02/27/24	02/28/24	10:00	08:00
3	03/01/24	08:30	02/29/24	03/01/24	10:00	08:00

Type of Test(s)	
<u>Ceriodaphnia dubia</u>	<u>Chronic</u>
<u>Pimephales promelas</u>	<u>Chronic</u>

Dilution Water		
Sample #	Hardness	Alkalinity
	As mg/L CaCO ₃	as mg/L CaCO ₃
1	83	57
2	83	64
3	164	92

Start Sx # 1 Date: 2/27/2024
 Renew Sx # 1 Date: 2/28/2024
 Renew Sx # 2/1 Date: 2/29/2024
 Renew Sx # 2 Date: 3/1/2024
 Renew Sx # 3/2 Date: 3/2/2024
 Renew Sx # 3 Date: 3/3/2024
 Renew Sx # 3 Date: 3/4/2024

Test Start Date: 2/27/2024 Test End Date: 3/5/2024

Ceriodaphnia dubia Test Set Up: 10 Reps & 1 Organisms per Rep

Pimephales Test Set Up: 5 Reps & 8 Organism per Rep

Concentrations: 28 37 50 66 88 %

Test Chemistry on these dilutions: 28 37 50 66 88

Samples received by: Express Delivery UPS Next Day via Air Cargo DHL
 Federal Express the Client Bio-Aquatic personnel

Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Tyler, City of

Lab ID: 89384

Facility: Westside WWTF

Outfall: 001

Dilution Water(s): Receiving Stream

Test Date: February 27, 2024

EFFLUENT PARAMETERS

Effluent Sample #	Received		Residual Cl ₂ (mg/L)	DeChlor (ml/L) ¹	Ammonia (mg/L)	Analyst Initials	Temp. Received
	Date	Time					
1	2/26/24	11:30	<0.10	N/A	1.2	JP	3.9
2	2/28/24	09:00	<0.10	N/A	14.4	JP	3.0
3	3/1/24	08:30	<0.10	N/A	10.8	JP	3.0

¹**Dechlorination Reagent:** 0.025 N Sodium Thiosulfate

Effluent Sample #	pH	DO (mg/L)	Hardness (mg/L CaCO ₃)	Alkalinity (mg/L CaCO ₃)	Conductivity (umhos/cm)	Analyst Initials
1	7.3	9.4	107	76	833	JP
2	7.1	10.6	80	97	636	JP
3	7.1	10.0	132	98	562	JP

DAILY RENEWAL CONDUCTIVITY**

Date		Sample #	Values are at Highest Dilution		Analyst
			Specific Conductivity as umhos/cm	Salinity (ppt)	
2/27	TCON		287	0.2	CG
2/28	TCON		309	0.2	JC/MM
2/29	TCON		308	0.2	JC
3/1	TCON		292	0.2	JC/AK
3/2	TCON		297	0.2	AR/JC
3/3	TCON		296	0.2	CK/AR
3/4	TCON		291	0.2	MM
2/27	OUTFALL*	1	916	0.5	CG
2/28	OUTFALL*	1	848	0.5	JC/MM
2/29	OUTFALL*	2/1	641	0.4	JC
3/1	OUTFALL*	2	705	0.4	JC/AK
3/2	OUTFALL*	3/2	496	0.3	AR/JC
3/3	OUTFALL*	3	538	0.3	CK/AR
3/4	OUTFALL*	3	523	0.3	MM

**Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

Analysis Methods: Chlorine: Hanna Colorimeter #HI711, Ammonia: Hanna Colorimeter #HI733, Hardness: Hanna Photometer #HI96735, Alkalinity: Hanna Colorimeter #HI775, pH, DO, Conductivity: Thermo Versa Star Benchtop Meter

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

Chronic

Ceriodaphnia dubia

Client: Tyler, City of

Lab ID: 89384

Facility: Westside WWTF

Dilution Water(s): Receiving Stream

Outfall: 001

Test Begin Date: February 27, 2024

NR indicates that the test is non-renewal.

				Concentration									
ANALYST	DATE	TIME	SX#	UNIT	TCON	28	37	50	66	88			
CG	2/27	Start	1	pH	7.5	7.4	7.4	7.3	7.3	7.3			
		25 ± 1		DO (mg/L)	8.6	8.7	8.7	8.8	8.8	8.8			
JC/MM	2/28	24 Hr	1	pH	8.0	7.9	7.9	7.9	7.9	8.0			
		25 ± 1		DO (mg/L)	8.0	8.0	8.0	8.0	8.0	8.0			
		Renew	1	pH	7.9	7.8	7.8	7.8	7.8	7.7			
				DO (mg/L)	8.7	8.7	8.7	8.7	8.7	8.7			
JC	2/29	48 Hr	1	pH	8.3	8.2	8.2	8.6	8.2	8.2			
		25 ± 1		DO (mg/L)	8.2	8.6	8.1	8.3	8.4	8.4			
		Renew	2/1	pH	7.7	7.6	7.6	7.6	7.6	7.6			
				DO (mg/L)	8.9	8.9	8.9	9.0	9.0	7.6			
JC/AK	3/1	72 Hr	2/1	pH	8.0	7.9	7.9	7.9	7.9	7.9			
		25 ± 1		DO (mg/L)	8.0	8.0	8.0	8.0	8.0	8.1			
		Renew	2	pH	7.9	7.8	7.8	7.7	7.7	7.7			
				DO (mg/L)	8.6	8.7	8.7	8.7	8.7	9.0			
AR/JC	3/2	96 Hr	2	pH	8.3	8.2	8.2	8.2	8.2	8.2			
		25 ± 1		DO (mg/L)	8.1	8.0	8.0	8.0	8.0	7.9			
		Renew	3/2	pH	7.4	7.4	7.4	7.5	7.5	7.4			
				DO (mg/L)	8.6	8.6	8.6	8.6	8.6	8.5			
CK/AR	3/3	120 Hr	3/2	pH	7.9	7.8	7.8	7.8	7.8	7.8			
		25 ± 1		DO (mg/L)	8.0	7.9	7.9	7.9	7.9	8.0			
		Renew	3	pH	7.6	7.5	7.5	7.4	7.4	7.4			
				DO (mg/L)	8.7	8.9	8.9	9.1	9.1	9.2			
TM/AR	3/4	144 Hr	3	pH	7.7	7.7	7.7	7.8	7.8	7.8			
		25 ± 1		DO (mg/L)	8.2	8.2	8.2	8.2	8.2	8.1			
		Renew	3	pH	7.4	7.4	7.4	7.4	7.4	7.4			
				DO (mg/L)	7.9	8.0	8.0	7.8	7.8	7.6			
MM	3/5	168 Hr	3	pH	7.6	7.5	7.6	7.7	7.5	7.5			
		25 ± 1		DO (mg/L)	8.0	8.0	8.1	8.0	7.9	7.8			

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

Chronic

Pimephales promelas

Client: Tyler, City of

Lab Number: 89384

Facility: Westside WWTF

Dilution Water(s): Receiving Stream

Outfall: 001

Test Begin Date: February 27, 2024

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					TCON	28	37	50	66	88		
CG	2/27	Start	1	pH	7.5	7.4	7.4	7.3	7.3	7.3		
		25 ± 1		DO (mg/L)	8.6	8.7	8.7	8.8	8.8	8.8		
		24 Hr		1	pH	7.8	7.8	7.8	7.8	7.8	7.9	
25 ± 1	DO (mg/L)	8.6	8.5		8.5	8.5	8.5	8.5				
Renew	1	pH	7.9		7.8	7.8	7.8	7.8	7.7			
				DO (mg/L)	8.7	8.7	8.7	8.7	8.7	8.7		
JC	2/29	48 Hr	1	pH	7.8	7.8	7.8	7.8	7.8	7.8		
		25 ± 1		DO (mg/L)	8.8	8.6	8.6	8.5	8.5	8.3		
		Renew		2/1	pH	7.7	7.6	7.6	7.6	7.6	7.6	
				DO (mg/L)	8.9	8.9	8.9	9.0	9.0	7.6		
JC/AK	3/1	72 Hr	2/1	pH	7.7	7.7	7.7	7.7	7.7	7.8		
		25 ± 1		DO (mg/L)	8.5	8.3	8.3	8.3	8.3	7.7		
		Renew		2	pH	7.9	7.8	7.8	7.7	7.7	7.7	
				DO (mg/L)	8.6	8.7	8.7	8.7	8.7	9.0		
AR/JC	3/2	96 Hr	2	pH	7.5	7.5	7.5	7.6	7.6	7.6		
		25 ± 1		DO (mg/L)	8.1	8.1	8.1	8.0	8.0	8.1		
		Renew		3/2	pH	7.4	7.4	7.4	7.5	7.5	7.4	
				DO (mg/L)	8.6	8.6	8.6	8.6	8.6	8.5		
CK/AR	3/3	120 Hr	3/2	pH	7.6	7.6	7.6	7.6	7.6	7.6		
		25 ± 1		DO (mg/L)	8.3	8.2	8.2	8.0	8.0	7.9		
		Renew		3	pH	7.6	7.5	7.5	7.4	7.4	7.4	
				DO (mg/L)	8.7	8.9	8.9	9.1	9.1	9.2		
TM/AR	3/4	144 Hr	3	pH	7.4	7.3	7.3	7.4	7.4	7.5		
		25 ± 1		DO (mg/L)	7.4	7.5	7.5	7.5	7.5	7.4		
		Renew		3	pH	7.4	7.4	7.4	7.4	7.4	7.4	
				DO (mg/L)	7.9	8.0	8.0	7.8	7.8	7.6		
MM	3/5	168 Hr	3	pH	8.0	7.9	7.9	7.9	7.9	7.9		
		25 ± 1		DO (mg/L)	8.2	8.2	8.2	8.1	8.1	8.1		

Appendix B

Ceriodaphnia dubia

BIO-AQUATIC TESTING, INC.

Carrollton, TX

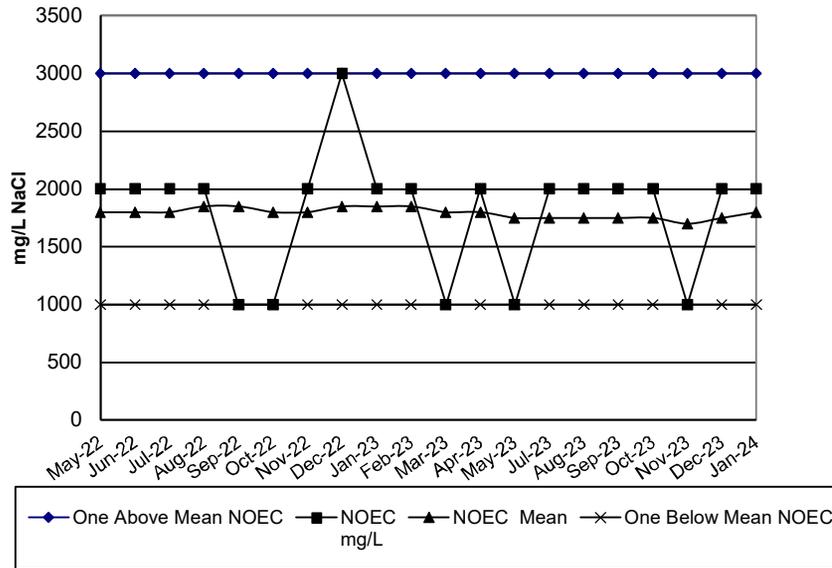
REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

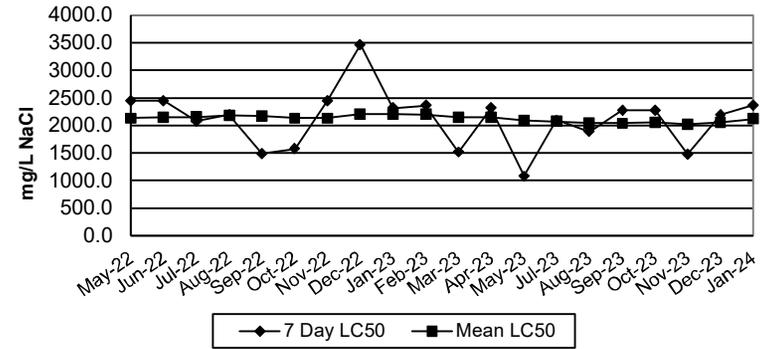
CHRONIC REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	3-Brood Chronic
TEST NUMBER:	346
PROJECT NUMBER:	91718
START DATE:	1/31/2024
START TIME:	16:25
TOTAL NUMBER EXPOSED:	10 organisms per concentration
CONCENTRATIONS (mg/L):	CON 250 500 1000 2000 3000 4000
NUMBER DEAD PER CONCENTRATION:	1 0 1 0 1 10 10
TEST METHODS:	As listed in EPA-821-R-02-013
STATISTICAL METHODS:	SURVIVAL: Fisher's Exact Test REPRODUCTION: ANOVA-Dunnetts w/Bonf. Adj.
NOEC FOR SURVIVAL:	2000 mg/L
LOEC FOR SURVIVAL:	3000 mg/L
NOEC FOR REPRODUCTION:	1000 mg/L
LOEC FOR REPRODUCTION:	2000 mg/L
PMSD:	24.9

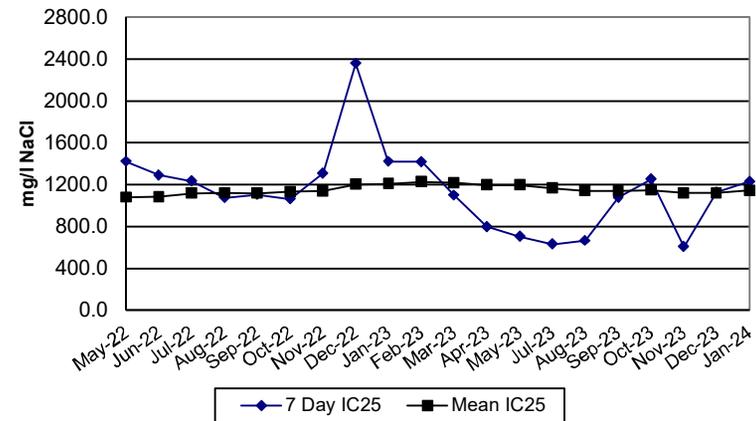
Ceriodaphnia Chronic Survival Control Chart



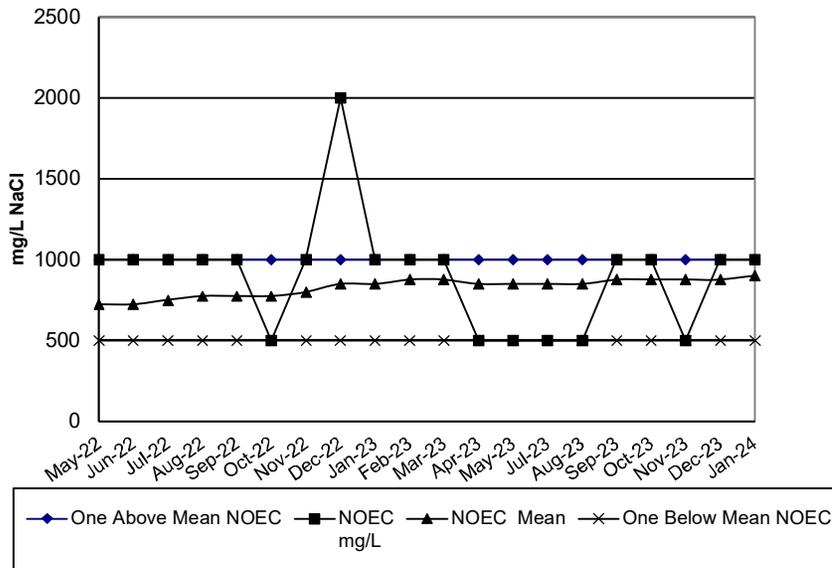
Ceriodaphnia 7-Day LC50



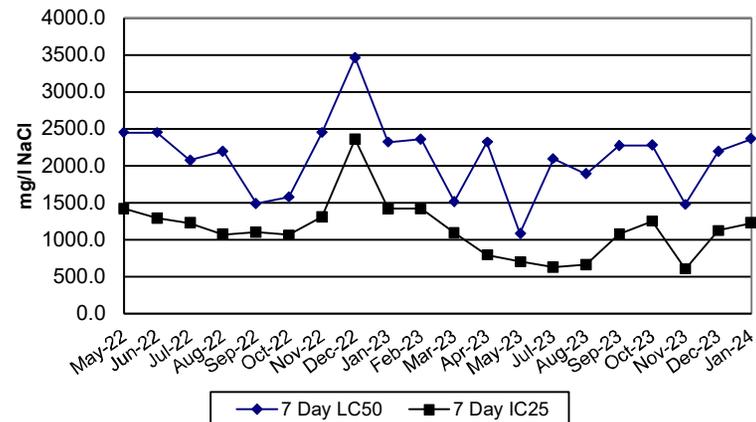
Ceriodaphnia 7-Day IC25



Ceriodaphnia Chronic Reproduction Control Chart



Ceriodaphnia 7-Day LC50 & IC25



Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

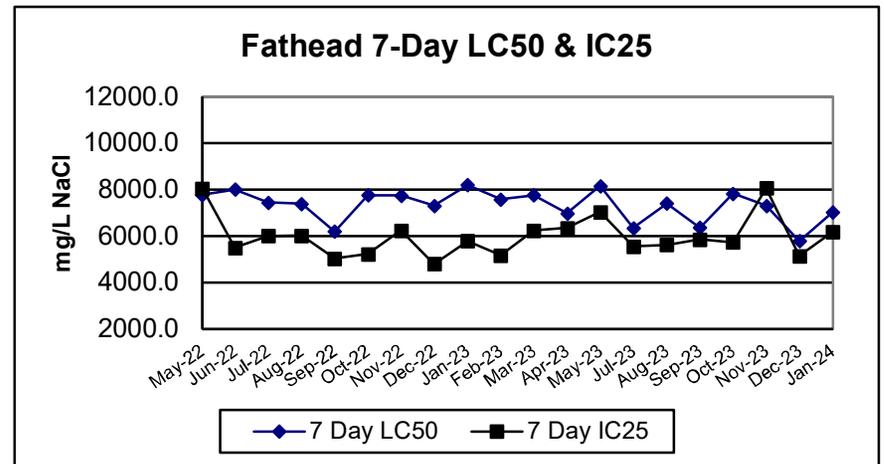
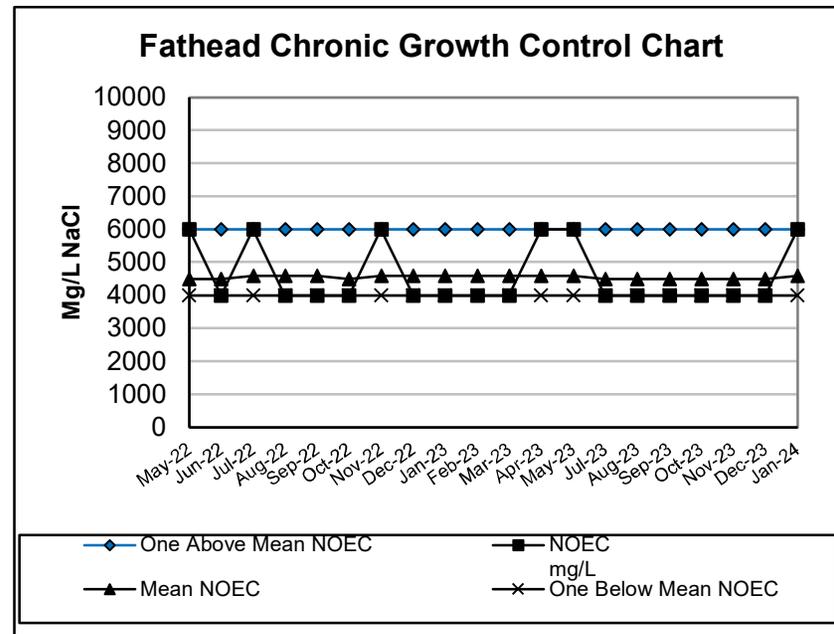
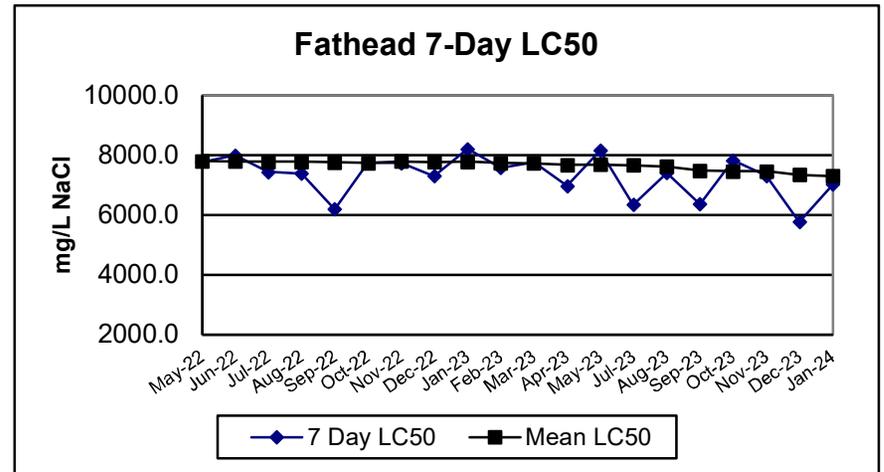
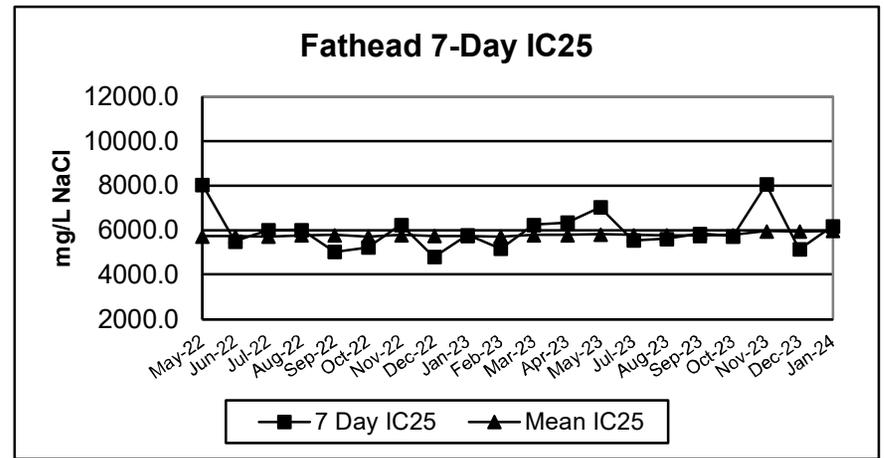
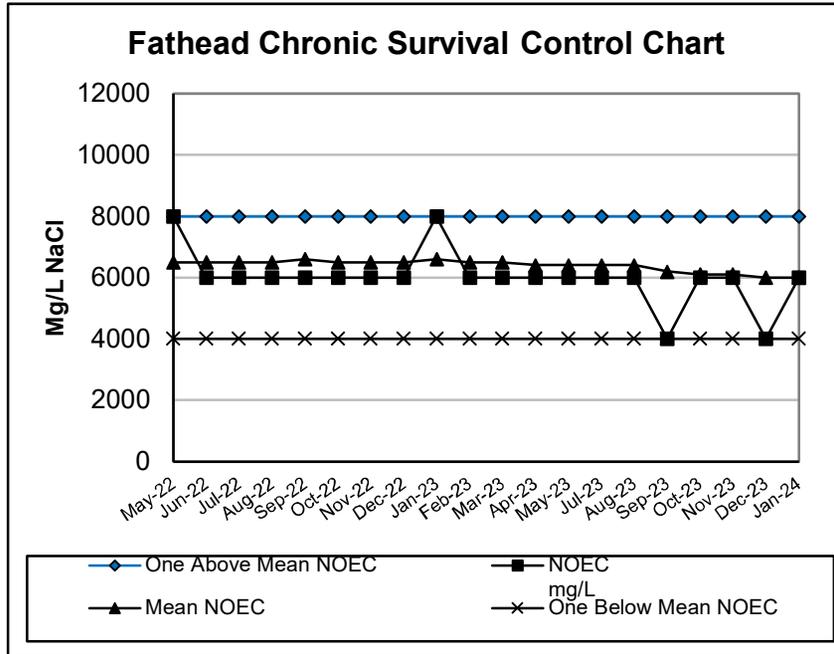
Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

CHRONIC REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater						
CHEMICAL:	Sodium Chloride						
DURATION:	7 Days						
TEST NUMBER:	386						
PROJECT NUMBER:	91725						
START DATE:	1/31/2024						
START TIME:	14:40						
TOTAL NUMBER EXPOSED:	40 organisms per concentration						
CONCENTRATIONS (mg/L):	CON	2000	4000	6000	8000	10000	12000
NUMBER DEAD PER CONCENTRATION:	4	1	7	6	24	40	40
TEST METHODS:	As listed in EPA-821-R-02-013						
STATISTICAL METHODS:	SURVIVAL: Steel's Many-One Rank Test GROWTH: ANOVA-Dunnetts						
NOEC FOR SURVIVAL:	6000	mg/L					
LOEC FOR SURVIVAL:	8000	mg/L					
NOEC FOR GROWTH:	6000	mg/L					
LOEC FOR GROWTH:	8000	mg/L					
PMSD:	24.4						



APPENDIX C

LITERATURE REFERENCES

- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fifth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-012.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents and Receiving Water To Marine And Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-014.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fourth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-013.
- U.S.E.P.A., 2012. Tropical Collector Urchin, *Tripneustes gratilla* (First Edition) U.S. Environmental Protection Agency, Office of Research and Development and Region 9, EPA-600-R-12-022.
- U.S.E.P.A., 1995. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To West Coast Marine and Estuarine Organisms (First Edition) U.S. Environmental Protection Agency, EPA-600-R-95-136.
- U.S.E.P.A., 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, U.S. Environmental Protection Agency, Office of Wastewater, Washington D.C., EPA-833-R-10-004.
- U.S.E.P.A., 1991. Technical Support Document For Water Quality-Based Toxics Control, U.S. Environmental Protection Agency, EPA-505-2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis, (Second Edition). Prentice-Hall, Inc., Englewood Cliffs, N.J.

CHAIN-OF-CUSTODY SHEETS

Appendix D



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

CHAIN OF CUSTODY

Lab Id : **89384**

Bio Only
 No Sample Left

Please Fill Out C-O-C by Completing Sections A, B, & C. **P.O. No.:**

A.1 Check Sample # For Chronic and 48 Hour Acute Tests : _____ First, _____ Second, or _____ Third.

Check the type of test(s) required, if different from the Scheduled Test(s) in "A":

<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour
C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	M. bahia (shrimp)	M. beryllina (minnow)	Selenastrum (green algae)				

Notes: 1st Semi
 Include 1st Semi 24-hr Acute
 F/R 6/14/21 till permit renews
 Cerio (2x yr) Fathead (1x yr)

Client: Tyler, City of
Facility: Westside WWTF
Permit No: 10653-001 **Outfall:** 001
Client Contact: MIKE SCHAUB, SUPR.
Client Phone: 903-581-9635

A. SCHEDULED TEST(S):
 Chronic Ceriodaphnia dubia
 Chronic Pimephales promelas
 To Ship the 1st Sample on: 2/26/2024
 Dilution Series: 28 37 50 66 88
 Include Semi-annual 24hr Acute Test? Yes

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To			
1 U.S.T.P. Eff	E	2/26/24	2/26/24	Comp	Paul O Tooru	1
2 U.S.T.P. R.S.	R.S.	2/26/24	2/26/24	Comp	Paul O Tooru	3
3						

Relinquished By:	Date	Time	Received By:	Date	Time
	2/26/24	1130	Rance Parrott	2/26/24	1130
	2/26/24	1900	Jay Payne	2-27-24	0900

Bio-Aquatic Sample Login				Effluent Parameters:				Receiving Stream Parameters:			
Date/Time: 2/27/24	Tech: JP	IR Gun#: 021		Temp: 39 (C)	pH: 7.3	Hd: 107 mg/l (LR)	Temp: 38 (C)	pH: 7.4	Hd: 83 mg/l (LR)		
				Cl ₂ : 20.1 mg/l	DO: 9.4 mg/l	Alk: 76 mg/l (OK)	Cl ₂ : 20.1 mg/l	DO: 9.8 mg/l	Alk: 57 mg/l (OK)		
				NH ₃ Ammonia: 833 ppt/uS	Int. Salinity/Conductivity: 833 ppt/uS	Adj. Sal: 1.2 (NH ₃)	NH ₃ Ammonia: 20.15 mg/l	Int. Salinity/Conductivity: 301 ppt/uS	Adj. Sal: 301		
				Dilution Water: <input checked="" type="radio"/> Receiving Stream <input type="radio"/> Synthetic Lab	Dechlor. <input type="radio"/> Yes <input type="radio"/> No	Condition: Colorimetric	Condition: GOOD				



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

CHAIN OF CUSTODY

Lab Id : **89384**

Bio Only
 No Sample Left

Please Fill Out C-O-C by Completing Sections A, B, & C.

P.O. No:

A.1 Check Sample # For Chronic and 48 Hour Acute Tests : _____ First, _____ Second, or _____ Third.

Check the type of test(s) required, if different from the Scheduled Test(s) in "A".

C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	M. bahia (shrimp)	M. beryllina (minnow)	Selenastrum (green algae)
<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour

Notes: 1st Semi
 Include 1st Semi 24-hr Acute
 F/R 6/14/21 till permit renews
 Cerio (2x.vr) Fathhead (1x.vr)

Client: Tyler, City of
Facility: Westside WWTF
Permit No: 10653-001 **Outfall:** 001
Client Contact: MIKE SCHAUB, SUPR.
Client Phone: 903-581-9635

A. SCHEDULED TEST(S):
 Ceriodaphnia dubia
 Pimephales promelas
To Ship the 1st Sample on: 2/26/2024
Dilution Series: 28 37 50 66 88
 Include Semi-annual 24hr Acute Test? Yes

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To			
1 W.S.T.P. EFF	EFF	2/28/24	2/28/24	Comp.	Kim D. Trench	1
2 W.S.T.P. R.S.	R.S.	2/28/24	2/28/24	Comp.	Kim D. Trench	1
3						

Relinquished By:	Date	Time	Received By:	Date	Time
Kim D. Trench	2/28/24	1800	Kim D. Trench	2/29/24	0910
3					

Bio-Aquatic Sample Login			Effluent Parameters:			Receiving Stream Parameters:		
Date: 2-29-24	Tech: JP	IR Gun#: 026	Temp: 3.0 (C)	pH: 7.1	Hd: 80 mg/l (LR)	Temp: 3.1 (C)	pH: 7.1	Hd: 83 mg/l (LR)
Time: 10:02	Dilution Water: <input checked="" type="radio"/> Receiving Stream <input type="radio"/> Synthetic Lab	Decolor: <input type="radio"/> Yes <input type="radio"/> No	Cl ₂ : <0.1 mg/l	DO: 10.6 mg/l	Alk: 97 mg/l (OK)	Cl ₂ : <0.1 mg/l	DO: 11.0 mg/l	Alk: 64 mg/l (OK)
			NH ₃ : 14.4 mg/l (Ammonia)	Int. Salinity/Conductivity: 634 ppt/uS	Adj. Sal: ppt	NH ₃ : <0.25 mg/l (Ammonia)	Int. Salinity/Conductivity: 264 ppt/uS	Adj. Sal: ppt
			Condition: 666 mg/Lic NH ₃	Other:		Condition: 600D	Other:	



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

CHAIN OF CUSTODY

89384

Lab Id :

Bio Only
 No Sample Left

Please Fill Out C-O-C by Completing Sections A, B, & C. **P.O. No.:**

Client: Tyler, City of
Facility: Westside WWTF
Permit No: 10653-001 **Outfall:** 001
Client Contact: MIKE SCHAUB, SUPR.
Client Phone: 903-581-9635

A.1 Check Sample # For Chronic and 48 Hour Acute Tests : First, Second, or Third.
 Check the type of test(s) required, if different from the Scheduled Test(s) in "A":

<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour
--	--	--	--	--	--	--	--

A. SCHEDULED TEST(S):
 Chronic Ceriodaphnia dubia
 Chronic Pimephales promelas
 Dilution Series: 28 37 50 66 88
 To Ship the 1st Sample on: 2/26/2024
 Include Semi-annual 24hr Acute Test? Yes

Notes: 1st Semi Include 1st Semi 24-hr Acute F/R 6/14/21 till permit renews Cerio (2x yr) Fathead (1x yr)

B.

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To			
1 W.S.T.P. EFF.	E	3/29/24	3/1/24	Comp	[Signature]	1
2 W.S.T.P. RS	RS	—	3/1/24	Grab	[Signature]	1
3						

C.

Relinquished By:	Date	Time	Received By:	Date	Time
[Signature]	3/1/24	0830	Rance LaMont	3/1/24	0830
[Signature]	3/1/24	1800	Jay Pangie	3.2.24	0855
3					

Bio-Aquatic Sample Login
 Date/ 3.2.24
 Time: 1033
 Tech: JP IR Gun#: 026
 Dilution Water: Dechlor. Yes No
 Receiving Stream Receiving Stream Synthetic Lab

Effluent Parameters:				Receiving Stream Parameters:			
Temp: 3.0 (C)	pH: 7.1	Hd: 132 mg/l (LR)	Temp: 3.1 (C)	pH: 7.1	Hd: 164 mg/l (LR)		
Cl ₂ : <0.1 mg/l	DO: 10.0 mg/l	Alk: 98 mg/l (OK)	Cl ₂ : <0.1 mg/l	DO: 9.8 mg/l	Alk: 92 mg/l (OK)		
NH ₃ : 10.8 mg/l	Int. Salinity/ Conductivity: 562-ppu/US	Adj. Sal: ppt	NH ₃ : <0.25 mg/l	Int. Salinity/ Conductivity: 382	Adj. Sal: ppt		
Condition: 26.6 mg/l NH ₃	Other:		Condition: 6.05	Other:			

REGULATORY AGENCY TABLES

Appendix E

BIOMONITORING REPORT

Ceriodaphnia dubia SURVIVAL AND REPRODUCTION TEST

Permittee: Tyler, City of - Westside WWTF
 Permit No.: 10653-001
 Outfall No.: 001

	Date/Time	Date/Time
Dates and times	FROM: <u>2/25/2024 @ 10:00</u>	TO: <u>2/26/2024 @ 08:00</u>
Composites were collected:	FROM: <u>2/27/2024 @ 10:00</u>	TO: <u>2/28/2024 @ 08:00</u>
	FROM: <u>2/29/2024 @ 10:00</u>	TO: <u>3/1/2024 @ 08:00</u>

Pimephales promelas **passed** survival and growth testing requirements when compared to the Performance Control (PCON). The True Control (TCON) was invalid because it did not meet the minimum test acceptability criteria.

Test Initiation: Time: 13:50 Date: 2/27/2024

Dilution Water Used: Receiving Water Synthetic Dilution Water

NUMBER OF YOUNG PRODUCED PER ADULT AT TEST TERMINATION

REPLICATE	EFFLUENT CONCENTRATION (%)						
	TCON	PCON	28 %	37 %	50 %	66 %	88 %
A	15	22	16	18	13	17	22
B	30	23	18	27	16	19	18
C	18	21	15	22	19	14	19
D	28	15	19	24	15	17	14
E	15	16	16	19	16	14	15
F	15	16	19	19	E	23	13
G	28	27	20	22	26	20	12
H	35	24	21	20	23	20	29
I	27	20	26	13	27	26	27
J	28	24	E	17	24	14	E
Surv. MEAN	23.9	20.8	18.8	20.1	19.8	18.4	18.7
Total MEAN	23.9	20.8	18.9	20.1	19.9	18.4	18.8
CV % ¹	30.9	19.3	17.7	19.4	26.2	21.9	32.7
PMSD	Acceptable Range 47 or Less					24.0 %	

¹ Coefficient of Variation = (standard deviation/mean) x 100 Calculations are based on young of the surviving females. Males are designated (M), and dead females are designated (D) along with the number of neonates released prior to death.

BIOMONITORING REPORT

Pimephales promelas SURVIVAL AND GROWTH TEST

Permittee: Tyler, City of - Westside WWTF
 Permit No.: 10653-001
 Outfall No.: 001

		Date/Time		Date/Time
Dates and times	FROM:	<u>2/25/2024 @ 10:00</u>	TO:	<u>2/26/2024 @ 08:00</u>
Composites were collected:	FROM:	<u>2/27/2024 @ 10:00</u>	TO:	<u>2/28/2024 @ 08:00</u>
	FROM:	<u>2/29/2024 @ 10:00</u>	TO:	<u>3/1/2024 @ 08:00</u>

Pimephales promelas **passed** survival and growth testing requirements when compared to the Performance Control (PCON). The True Control (TCON) was invalid because it did not meet the minimum test acceptability criteria.

Test Initiation: Time: 17:09 Date: 2/27/2024

Dilution Water Used: Receiving Water Synthetic Dilution Water

DATA TABLE FOR GROWTH OF *Pimephales promelas*

Effluent Concentration	Average Dry Weight in milligrams (mg) per replicate					Mean Dry Weight (mg)	CV % ¹
	A	B	C	D	E		
TCON	0.312	0.360	0.484	0.434	0.207	0.359	30.0
PCON	0.416	0.385	0.359	0.478	0.339	0.395	13.8
28 %	0.376	0.277	0.314	0.320	0.426	0.343	17.2
37 %	0.440	0.350	0.378	0.394	0.257	0.364	18.7
50 %	0.384	0.384	0.387	0.384	0.284	0.365	12.4
66 %	0.458	0.434	0.376	0.321	0.450	0.408	14.3
88 %	0.369	0.351	0.374	0.314	0.388	0.359	7.9
PMSD	Acceptable Range 30 or Less					20.2 %	

DATA TABLE FOR SURVIVAL OF *Pimephales promelas*

Effluent Concentration	Percent Survival per replicate					Average % Survival			CV % ¹
	A	B	C	D	E	24 Hours	48 Hours	7-Day	
TCON	75	75	100	100	37.5	100	100	77.5	33.1
PCON	100	87.5	75	100	87.5	100	100	90	11.6
28 %	75	87.5	75	87.5	100	100	100	85	12.3
37 %	100	87.5	87.5	100	75	100	100	90	11.6
50 %	75	87.5	87.5	87.5	75	100	100	82.5	8.3
66 %	100	100	87.5	75	100	100	100	92.5	12.1
88 %	87.5	100	87.5	75	100	100	100	90	11.6

¹ Coefficient of Variation = (standard deviation/mean) x 100)

?= cannot be calculated due to 100% mortality or lab exception

BIOMONITORING REPORT

Pimephales promelas SURVIVAL AND GROWTH TEST

Permittee: Tyler, City of - Westside WWTF

Permit No.: 10653-001

Outfall No.: 001

1. DUNNETT'S PROCEDURE OR STEEL'S MANY-ONE RANK TEST OR WILCOXON RANK SUM TEST
(with Bonferroni adjustment as appropriate for Sub-Lethality)

Is the mean dry weight at 7 days significantly less ($p=0.05$) than the control's mean dry weight for the % effluent corresponding to significant non-lethal effects?

CRITICAL DILUTION (88 %): _____ YES _____ X _____ NO

If you report NO, enter a '0' on the DMR form for Parameter TWP6C, other wise enter a '1'. This parameter is also referred to as the 7-DAY Pimephales Sub-Lethal Pass/Fail.

2. DUNNETT'S PROCEDURE OR STEEL'S MANY-ONE RANK TEST OR WILCOXON RANK SUM TEST
(as appropriate for Lethality)

Is the survival at 7 days significantly less ($p=0.05$) than the control's survival for % effluent corresponding to lethality?

CRITICAL DILUTION (88 %): _____ YES _____ X _____ NO

If you report NO, enter a '0' on the DMR form for Parameter TLP6C, other wise enter a '1'. This parameter is also referred to as the 7-DAY Pimephales Lethal Pass/Fail.

3. Enter the percent effluent corresponding to each NOEC/LOEC below:

a. NOEC Survival = 88 % Effluent (Parameter TOP6C)

b. LOEC Survival = Q* % Effluent (Parameter TXP6C)

c. NOEC Growth = 88 % Effluent (Parameter TPP6C)

d. LOEC Growth = Q* % Effluent (Parameter TYP6C)

Q* refers to a value that is not calculable

**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

March 21, 2023

Reviewed by: _____


Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client	City of Tyler	Sample	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	34988
Permit No.	TPDES 10653-001	Begin Date	March 21, 2023

Results: **Pass** *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up at the facility by Huther & Associates on March 20, March 22 and March 24, 2023. Effluent samples were collected and composited from Outfall 001 using an automatic sampler by facility personnel. Two toxicity tests were requested: a seven-day *Ceriodaphnia dubia* survival and reproduction test (EPA Method 1002.0), and a seven-day *Pimephales promelas* larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 24th Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP
Ceriodaphnia dubia



The seven-day *Ceriodaphnia dubia* survival and reproduction test was initiated at 1430 hours, March 21, 2023. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). *C. dubia* neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL *Selenastrum capricornutum* and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test organisms and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. The test ended at 1430 hours, March 28, 2023. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL

Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable

NOEC: 88% Effluent

REPRODUCTION

Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

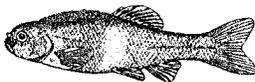
LOEC: Not Applicable

NOEC: 88% Effluent

PMSD: 7.5%

TEST SETUP

Pimephales promelas



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1515 hours, March 21, 2023. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight organisms per beaker, five beakers per concentration). *P. promelas* larvae were less than 24-hours-old at test initiation and originated from a minimum of three in-house spawnings. Fresh solutions were prepared and renewed daily. Larvae in each test chamber were fed <24-hour-old *Artemia* (brine shrimp) three times per day. The test proceeded for seven days during which survival and water quality data were collected daily.

A true control of five replicate beakers of eight larvae each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1515 hours, March 28, 2023. Survival and growth (weight) data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Pimephales promelas

There was 100% survival to *P. promelas* in all the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

GROWTH
Pimephales promelas

P. promelas growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 10.1%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	03/20/23 03/22/23 03/24/23
LAB ID #	34988	DATE RECEIVED	03/20/23 03/22/23 03/24/23
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	03/21/23 1430
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	03/28/23 1430
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	M. Horner

SURVIVAL & REPRODUCTION SUMMARY

Performance Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	2	4	3	3	3	3	4	4	5	3
	2	4	3	3	3	3	4	4	5	3
03/26/23	10	7	6	9	11	9	7	9	10	8
	12	11	9	12	14	12	11	13	15	11
03/27/23	A	A	A	A	A	A	A	A	A	A
	12	11	9	12	14	12	11	13	15	11
03/28/23	13	14	12	13	13	13	14	12	12	12
	25	25	21	25	27	25	24	27	27	23
x# Young 24.9 C.V. 7.68% x% Survival 100% C.V. 0.00%										

True Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	5	4	4	2	5	3	4	4	5	2
	5	4	4	2	5	3	4	4	5	2
03/26/23	11	9	10	11	8	11	6	7	7	9
	16	13	14	13	13	14	10	11	12	11
03/27/23	A	A	A	A	A	A	A	A	A	A
	16	13	14	13	13	14	10	11	12	11
03/28/23	12	12	12	14	13	14	13	12	13	12
	28	25	26	27	26	28	23	23	25	23
x# Young 25.4 C.V. 7.70% x% Survival 100% C.V. 0.00%										

28% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	5	4	2	3	3	2	2	5	4	4
	5	4	2	3	3	2	2	5	4	4
03/26/23	7	8	8	7	6	7	11	6	10	6
	12	12	10	10	9	9	13	11	14	10
03/27/23	A	A	A	A	A	A	A	A	A	A
	12	12	10	10	9	9	13	11	14	10
03/28/23	14	12	14	12	13	13	12	13	12	13
	26	24	24	22	22	22	25	24	26	23
x# Young 23.8 C.V. 6.51% x% Survival 100% C.V. 0.00%										

37% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	5	5	3	2	5	2	2	5	3	4
	5	5	3	2	5	2	2	5	3	4
03/26/23	9	10	8	8	8	8	9	10	8	7
	14	15	11	10	13	10	11	15	11	11
03/27/23	A	A	A	A	A	A	A	A	A	A
	14	15	11	10	13	10	11	15	11	11
03/28/23	13	12	13	12	14	14	14	13	13	12
	27	27	24	22	27	24	25	28	24	23
x# Young 25.1 C.V. 8.07% x% Survival 100% C.V. 0.00%										

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34988

Test Date: March 21, 2023

50% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	4	2	3	2	3	5	5	4	2	4
	4	2	3	2	3	5	5	4	2	4
03/26/23	6	7	10	6	10	9	6	7	11	6
	10	9	13	8	13	14	11	11	13	10
03/27/23	A	A	A	A	A	A	A	A	A	A
	10	9	13	8	13	14	11	11	13	10
03/28/23	14	14	13	14	12	13	12	13	13	13
	24	23	26	22	25	27	23	24	26	23
x# Young 24.3 C.V. 6.73% x% Survival 100% C.V. 0.00%										

66% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	2	3	5	5	5	3	4	3	5	4
	2	3	5	5	5	3	4	3	5	4
03/26/23	9	7	6	7	11	7	7	7	8	6
	11	10	11	12	16	10	11	10	13	10
03/27/23	A	A	A	A	A	A	A	A	A	A
	11	10	11	12	16	10	11	10	13	10
03/28/23	13	13	14	12	14	14	13	12	12	14
	24	23	25	24	30	24	24	22	25	24
x# Young 24.5 C.V. 8.66% x% Survival 100% C.V. 0.00%										

88% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/22/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/23/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/24/23	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/23	5	5	4	2	4	3	5	4	3	4
	5	5	4	2	4	3	5	4	3	4
03/26/23	7	6	8	10	7	6	6	7	11	9
	12	11	12	12	11	9	11	11	14	13
03/27/23	A	A	A	A	A	A	A	A	A	A
	12	11	12	12	11	9	11	11	14	13
03/28/23	14	13	12	14	14	14	12	12	14	13
	26	24	24	26	25	23	23	23	28	26
x# Young 24.8 C.V. 6.80% x% Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A	alive today
4	total young to date

 ex 2:

5	alive, 5 young today
12	total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34988

Test Date: March 21, 2023

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
03/21/23	Start	25.0	1	8.35	8.32	7.97	7.71	7.62	7.53	7.50	HB
03/22/23	24 Hr.	24.6	1	8.23	8.13	7.80	7.68	7.58	7.53	7.51	RP
03/22/23	Renew	25.0	1	8.09	7.99	7.68	7.58	7.49	7.44	7.41	RP
03/23/23	48 Hr.	24.0	1	8.61	7.76	7.46	7.34	7.28	7.21	7.19	JP
03/23/23	Renew	25.0	2	8.84	7.65	7.38	7.27	7.19	7.15	7.12	JP
03/24/23	72 Hr.	24.7	2	8.31	7.74	7.56	7.43	7.34	7.29	7.23	JP
03/24/23	Renew	25.0	2	8.28	7.82	7.49	7.38	7.32	7.27	7.19	JP
03/25/23	96 Hr.	24.0	2	8.57	8.24	7.86	7.73	7.63	7.53	7.48	JP
03/25/23	Renew	25.0	3	8.51	8.00	7.79	7.68	7.56	7.49	7.42	JP
03/26/23	120 Hr.	24.9	3	7.74	7.54	7.32	7.26	7.24	7.22	7.20	AS
03/26/23	Renew	25.0	3	7.83	7.73	7.50	7.43	7.47	7.39	7.33	AS
03/27/23	144 Hr.	24.6	3	8.16	7.98	7.66	7.57	7.51	7.51	7.49	RP
03/27/23	Renew	25.0	3	7.80	7.67	7.46	7.42	7.39	7.36	7.28	RP
03/28/23	168 Hr.	24.1	3	8.95	8.78	8.44	8.36	8.26	8.18	8.12	HB

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
03/21/23	Start	25.0	1	7.90	8.34	8.50	8.51	8.46	8.46	8.44	HB
03/22/23	24 Hr.	24.6	1	7.69	7.26	8.07	7.78	7.67	7.47	7.36	RP
03/22/23	Renew	25.0	1	7.36	8.13	8.36	8.22	8.17	7.95	8.07	RP
03/23/23	48 Hr.	24.0	1	7.73	8.19	8.65	8.20	8.31	8.45	8.58	JP
03/23/23	Renew	25.0	2	8.29	8.57	8.24	8.58	8.48	8.33	8.26	JP
03/24/23	72 Hr.	24.7	2	8.63	7.78	8.60	8.37	8.49	8.02	8.11	JP
03/24/23	Renew	25.0	2	7.86	8.59	8.29	7.70	8.63	8.51	8.53	JP
03/25/23	96 Hr.	24.0	2	8.58	8.45	8.29	8.04	7.81	8.27	7.75	JP
03/25/23	Renew	25.0	3	8.26	7.73	7.83	7.76	8.09	7.75	8.37	JP
03/26/23	120 Hr.	24.9	3	7.67	7.84	7.80	7.84	7.91	7.33	7.14	AS
03/26/23	Renew	25.0	3	8.39	7.80	7.84	8.33	8.65	7.77	8.37	AS
03/27/23	144 Hr.	24.6	3	7.83	8.02	8.42	8.34	8.24	8.30	8.29	RP
03/27/23	Renew	25.0	3	7.78	7.73	7.88	7.69	7.68	7.73	8.54	RP
03/28/23	168 Hr.	24.1	3	7.42	8.59	7.87	7.87	8.08	8.29	8.19	HB

Huthur and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34988

Test Date: March 21, 2023

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	1	7.41	7.78	68	96	1133	<0.01	N/A	HB
03/23/23	2	6.99	8.08	76	88	954	<0.01	N/A	JP
03/25/23	3	7.52	7.81	80	82	1038	<0.01	N/A	JP

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	RS1	8.32	8.34	40	52	274	<0.01	N/A	HB
03/23/23	RS2	7.65	8.57	44	48	282	<0.01	N/A	JP
03/25/23	RS3	8.00	7.73	44	48	283	<0.01	N/A	JP

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	23.000	28.000	25.400
2	28% Effluent	10	22.000	26.000	23.800
3	37% Effluent	10	22.000	28.000	25.100
4	50% Effluent	10	22.000	27.000	24.300
5	66% Effluent	10	22.000	30.000	24.500
6	88% Effluent	10	23.000	28.000	24.800

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.,%
1	Control	3.822	1.955	0.618	7.70
2	28% Effluent	2.400	1.549	0.490	6.51
3	37% Effluent	4.100	2.025	0.640	8.07
4	50% Effluent	2.678	1.636	0.517	6.73
5	66% Effluent	4.500	2.121	0.671	8.66
6	88% Effluent	2.844	1.687	0.533	6.80

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	> 0.5 to 1.5	> 1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	1	20	21	15	3

Calculated Chi-Square goodness of fit test statistic = 4.7725
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 1.42

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	16.550	3.310	0.976
Within (Error)	54	183.100	3.391	
Total	59	199.650		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	25.400	25.400		
2	28% Effluent	23.800	23.800	1.943	
3	37% Effluent	25.100	25.100	0.364	
4	50% Effluent	24.300	24.300	1.336	
5	66% Effluent	24.500	24.500	1.093	
6	88% Effluent	24.800	24.800	0.729	

Dunnnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
 No statistically significant difference

Dunnnett's Test - Table 2 of 2 Ho:Control < Treatment

Grp	Identification	Num of Reps	Minimum	Sig	% of Control	Difference from Control
			Diff (In Orig. Units)	Diff		
1	Control	10				
2	28% Effluent	10	1.902	7.5	7.5	1.600
3	37% Effluent	10	1.902	7.5	7.5	0.300
4	50% Effluent	10	1.902	7.5	7.5	1.100
5	66% Effluent	10	1.902	7.5	7.5	0.900
6	88% Effluent	10	1.902	7.5	7.5	0.600

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	03/20/23 03/22/23 03/24/23
LAB ID #	34988	DATE RECEIVED	03/20/23 03/22/23 03/24/23
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	03/21/23 1515
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/28/23 1515
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	R. Rosenthal

SURVIVAL SUMMARY

Conc.	03/22/23					03/23/23					03/24/23					03/25/23					03/26/23				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	03/27/23					03/28/23					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4650	0.4870	0.4250	0.4360	0.4520	0.4530	5.38
TCON	0.4710	0.4040	0.4130	0.4560	0.4450	0.4378	6.50
28%	0.4630	0.4820	0.4250	0.4070	0.4630	0.4480	6.89
37%	0.4520	0.4790	0.4830	0.4170	0.4560	0.4574	5.77
50%	0.4700	0.4150	0.4630	0.4820	0.4290	0.4518	6.30
66%	0.4590	0.4860	0.4570	0.4100	0.4560	0.4536	6.03
88%	0.3920	0.4740	0.4600	0.4530	0.4780	0.4514	7.69

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34988

Test Date: March 21, 2023

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
03/21/23	Start	25.0	1	8.35	8.32	7.97	7.71	7.62	7.53	7.50	HB
03/22/23	24 Hr.	24.0	1	7.78	7.71	7.55	7.49	7.44	7.40	7.41	RP
03/22/23	Renew	25.0	1	8.09	7.99	7.68	7.58	7.49	7.44	7.41	RP
03/23/23	48 Hr.	24.1	1	7.65	7.50	7.58	7.57	7.58	7.55	7.68	JP
03/23/23	Renew	25.0	2	8.84	7.65	7.38	7.27	7.19	7.15	7.12	JP
03/24/23	72 Hr.	24.9	2	7.60	7.44	7.60	7.69	7.71	7.84	7.82	JP
03/24/23	Renew	25.0	2	8.28	7.82	7.49	7.38	7.32	7.27	7.19	JP
03/25/23	96 Hr.	24.1	2	7.72	7.68	7.70	7.70	7.67	7.72	7.70	JP
03/25/23	Renew	25.0	3	8.51	8.00	7.79	7.68	7.56	7.49	7.42	JP
03/26/23	120 Hr.	24.6	3	7.21	7.38	7.44	7.50	7.55	7.62	7.68	AS
03/26/23	Renew	25.0	3	7.83	7.73	7.50	7.43	7.47	7.39	7.33	AS
03/27/23	144 Hr.	24.8	3	8.06	8.33	7.95	7.85	7.95	7.95	7.91	RP
03/27/23	Renew	25.0	3	7.80	7.67	7.46	7.42	7.39	7.36	7.28	RP
03/28/23	168 Hr.	24.1	3	8.17	7.82	7.63	7.58	7.56	7.46	7.38	HB

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
03/21/23	Start	25.0	1	7.90	8.34	8.50	8.51	8.46	8.46	8.44	HB
03/22/23	24 Hr.	24.0	1	8.64	8.62	8.45	8.36	8.11	8.20	8.37	RP
03/22/23	Renew	25.0	1	7.36	8.13	8.36	8.22	8.17	7.95	8.07	RP
03/23/23	48 Hr.	24.1	1	8.39	8.41	8.53	8.15	8.22	7.87	8.25	JP
03/23/23	Renew	25.0	2	8.29	8.57	8.24	8.58	8.48	8.33	8.26	JP
03/24/23	72 Hr.	24.9	2	8.26	8.31	8.27	8.07	8.16	7.76	8.16	JP
03/24/23	Renew	25.0	2	7.86	8.59	8.29	7.70	8.63	8.51	8.53	JP
03/25/23	96 Hr.	24.1	2	8.63	7.83	8.34	7.26	7.05	8.58	7.91	JP
03/25/23	Renew	25.0	3	8.26	7.73	7.83	7.76	8.09	7.75	8.37	JP
03/26/23	120 Hr.	24.6	3	7.85	8.57	7.67	7.67	8.63	7.70	7.68	AS
03/26/23	Renew	25.0	3	8.39	7.80	7.84	8.33	8.65	7.77	8.37	AS
03/27/23	144 Hr.	24.8	3	7.88	7.70	7.89	7.91	7.69	7.71	7.74	RP
03/27/23	Renew	25.0	3	8.78	8.73	8.88	8.69	8.68	8.73	8.54	RP
03/28/23	168 Hr.	24.1	3	7.97	7.68	7.82	8.37	7.93	7.84	7.90	HB

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34988

Test Date: March 21, 2023

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	1	7.41	7.78	68	96	1133	<0.01	N/A	HB
03/23/23	2	6.99	8.08	76	88	954	<0.01	N/A	JP
03/25/23	3	7.52	7.81	80	82	1038	<0.01	N/A	JP

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	RS1	8.32	8.34	40	52	274	<0.01	N/A	HB
03/23/23	RS2	7.65	8.57	44	48	282	<0.01	N/A	JP
03/25/23	RS3	8.00	7.73	44	48	283	<0.01	N/A	JP

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.404	0.471	0.438
2	28% Effluent	5	0.407	0.482	0.448
3	37% Effluent	5	0.417	0.483	0.457
4	50% Effluent	5	0.415	0.482	0.452
5	66% Effluent	5	0.410	0.486	0.454
6	88% Effluent	5	0.392	0.478	0.451

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.028	0.013	6.50
2	28% Effluent	0.001	0.031	0.014	6.89
3	37% Effluent	0.001	0.026	0.012	5.77
4	50% Effluent	0.001	0.028	0.013	6.30
5	66% Effluent	0.001	0.027	0.012	6.03
6	88% Effluent	0.001	0.035	0.016	7.69

Shapiro - Wilk's Test For Normality

D = 0.021

W = 0.912

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data Pass normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 0.37

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data Pass B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.001	0.000	0.259
Within (Error)	24	0.021	0.001	
Total	29	0.022		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	0.438	0.438		
2	28% Effluent	0.448	0.448	-0.546	
3	37% Effluent	0.457	0.457	-1.050	
4	50% Effluent	0.452	0.452	-0.750	
5	66% Effluent	0.454	0.454	-0.846	
6	88% Effluent	0.451	0.451	-0.729	

Dunnnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnnett's Test - Table 2 of 2 Ho:Control < Treatment

Grp	Identification	Num of Reps	Minimum	Sig	% of Control	Difference from Control
			Diff (In Orig. Units)	Diff		
1	Control	5				
2	28% Effluent	5	0.044	10.1	-0.010	
3	37% Effluent	5	0.044	10.1	-0.020	
4	50% Effluent	5	0.044	10.1	-0.014	
5	66% Effluent	5	0.044	10.1	-0.016	
6	88% Effluent	5	0.044	10.1	-0.014	

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHNA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Tyler-westside
 OUTFALL 001
 LAB ID # 34988

START DATE/TIME 3-21-23 MH 1430
 END DATE/TIME 3-28-23 MH 1430

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/22	A	A	A	A	A	A	A	A	A	A	MH	1430
3/23	A	A	A	A	A	A	A	A	A	A	MH	1500
3/24	A	A	A	A	A	A	A	A	A	A	TG	1345
3/25	2	4	3	3	3	3	4	4	5	3	MH	1430
3/26	10	7	6	9	11	9	7	9	10	8	MH	1345
3/27	A	A	A	A	A	A	A	A	A	A	TG	1230
3/28	13	14	12	13	13	13	14	12	12		MH	1430

\bar{x} # Young w/o Dead = 24.9 CV% = 7.68

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = CV% =

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/22	A	A	A	A	A	A	A	A	A	A	MH	1430
3/23	A	A	A	A	A	A	A	A	A	A	MH	1500
3/24	A	A	A	A	A	A	A	A	A	A	TG	1345
3/25	5	4	4	2	5	3	4	4	5	2	MH	1430
3/26	11	9	10	11	8	11	6	7	7	9	MH	1345
3/27	A	A	A	A	A	A	A	A	A	A	TG	1230
3/28	12	12	12	14	13	14	13	12	13	12	MH	1430

\bar{x} # Young w/o Dead = 25.4 CV% = 7.70

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/22	A	A	A	A	A	A	A	A	A	A	MH	1430
3/23	A	A	A	A	A	A	A	A	A	A	MH	1500
3/24	A	A	A	A	A	A	A	A	A	A	TG	1345
3/25	5	4	2	3	3	2	2	5	4	4	MH	1430
3/26	7	8	8	7	6	7	11	6	10	6	MH	1345
3/27	A	A	A	A	A	A	A	A	A	A	TG	1230
3/28	14	12	14	12	13	13	12	13	12	13	MH	1430

\bar{x} # Young w/o Dead = 23.8 CV% = 6.51

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/22	A	A	A	A	A	A	A	A	A	A	MH	1430
3/23	A	A	A	A	A	A	A	A	A	A	MH	1500
3/24	A	A	A	A	A	A	A	A	A	A	TG	1345
3/25	5	5	3	2	5	2	2	5	3	4	MH	1430
3/26	9	10	8	8	8	8	9	10	8	7	MH	1345
3/27	A	A	A	A	A	A	A	A	A	A	TG	1230
3/28	13	12	13	12	14	14	14	13	13	12	MH	1430

\bar{x} # Young w/o Dead = 25.1 CV% = 8.07

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL

CLIENT/FACILITY: Tyler - Westside DATE/TIME STARTED: 3-21-23 RR 1515
 OUTFALL #: 001 PROJECT #: 34988 DATE/TIME ENDED: 3-28-23 Jc 1515
 ORGANISM ID#: PP0.23.079

Conc.	3-22-23 HB 1515					3-23-23 Jc 930					3-24-23 Jc 1015					3-25-23 HB 845					3-26-23 HB 845									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
Pcon	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Tcon	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	3-27-23 Jc 940					3-28-23 Jc 1515					C.V.S
	A	B	C	D	E	A	B	C	D	E	
Pcon	8	8	8	8	8	8	8	8	8	8	100.0
Tcon	8	8	8	8	8	8	8	8	8	8	100.0
28	8	8	8	8	8	8	8	8	8	8	100.0
37	8	8	8	8	8	8	8	8	8	8	100.0
50	8	8	8	8	8	8	8	8	8	8	100.0
66	8	8	8	8	8	8	8	8	8	8	100.0
88	8	8	8	8	8	8	8	8	8	8	100.0

APPENDIX B
REFERENCE TOXICANTS

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 7-Days

TEST NUMBER: 3

TEST DATE: 03/02/23 - 03/09/23
0915 Hrs - 0915 Hrs

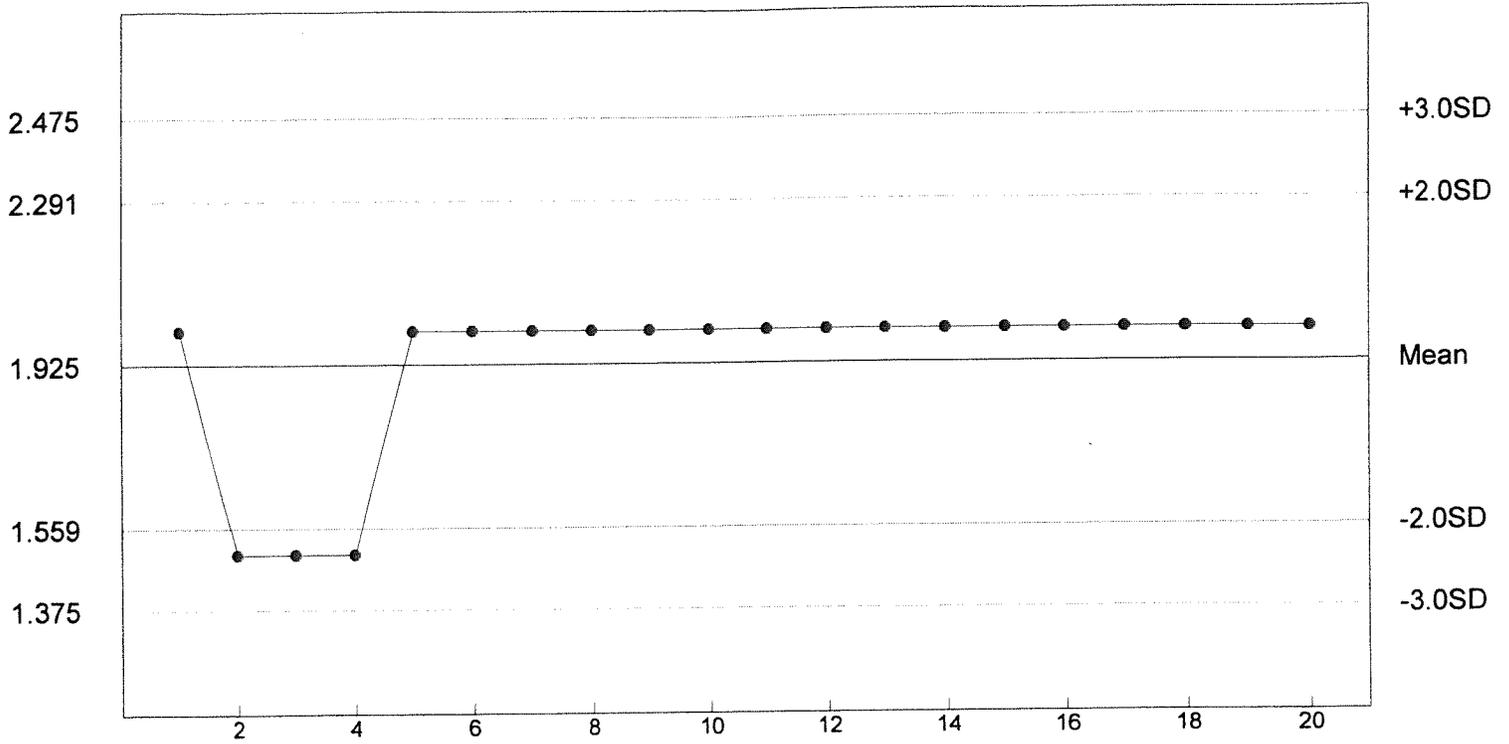
STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	0
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.5 g/L	2.0 g/L	2.0 g/L	1.5 g/L

Reference Tox Sodium Chloride g/L

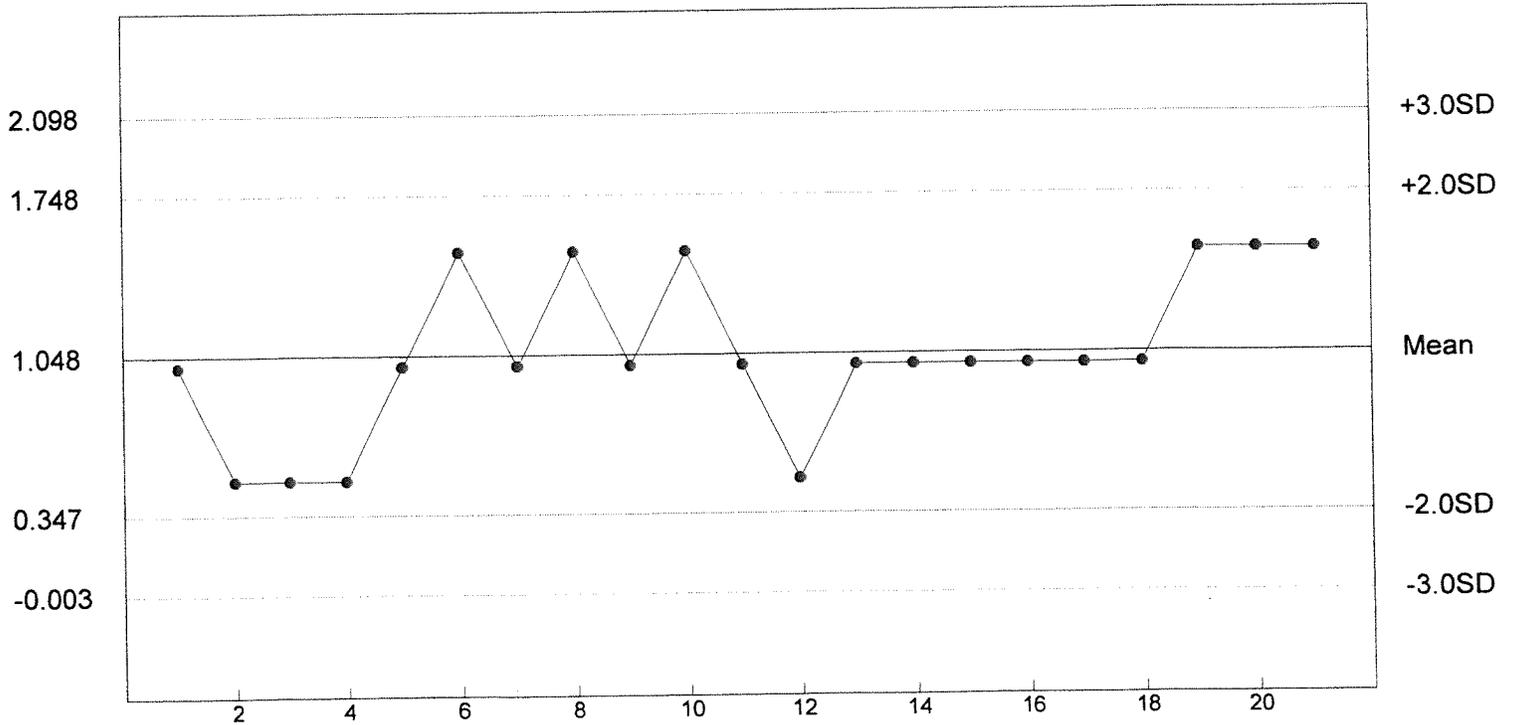
C. dubia Survival - NOEC



n= 20 Mean= 1.925 SD= 0.183 CV= 9.52% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 21 Mean= 1.048 SD= 0.350 CV= 33.43% Min= 0.500 Max= 1.500

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*

CHEMICAL: Copper Nitrate

DURATION: 7-Days

TEST NUMBER: 3

TEST DATE: 03/02/23 - 03/09/23
1300 Hrs -1300 Hrs

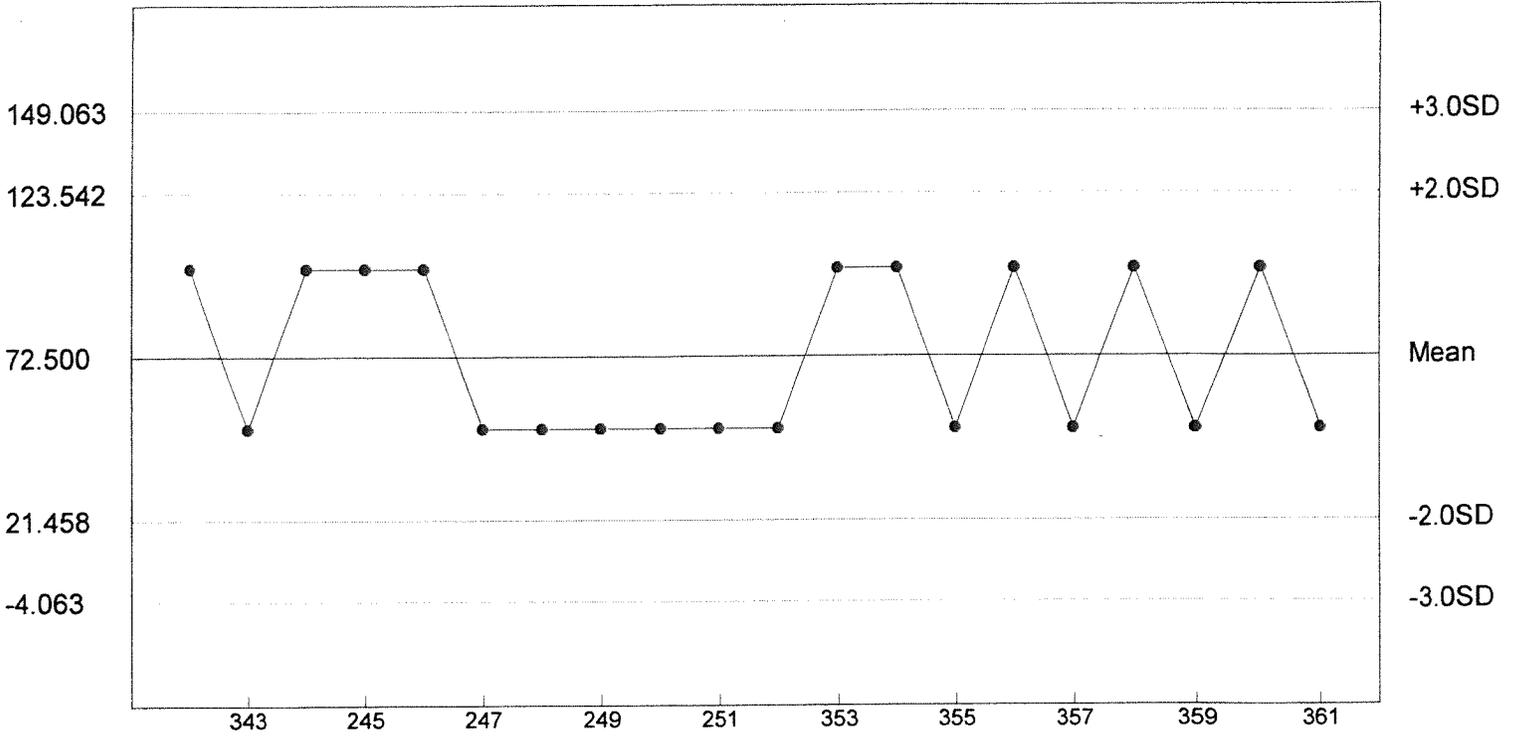
STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	13
200	40	27
400	40	40
800	40	40

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

Reference Tox Copper Nitrate ug/L

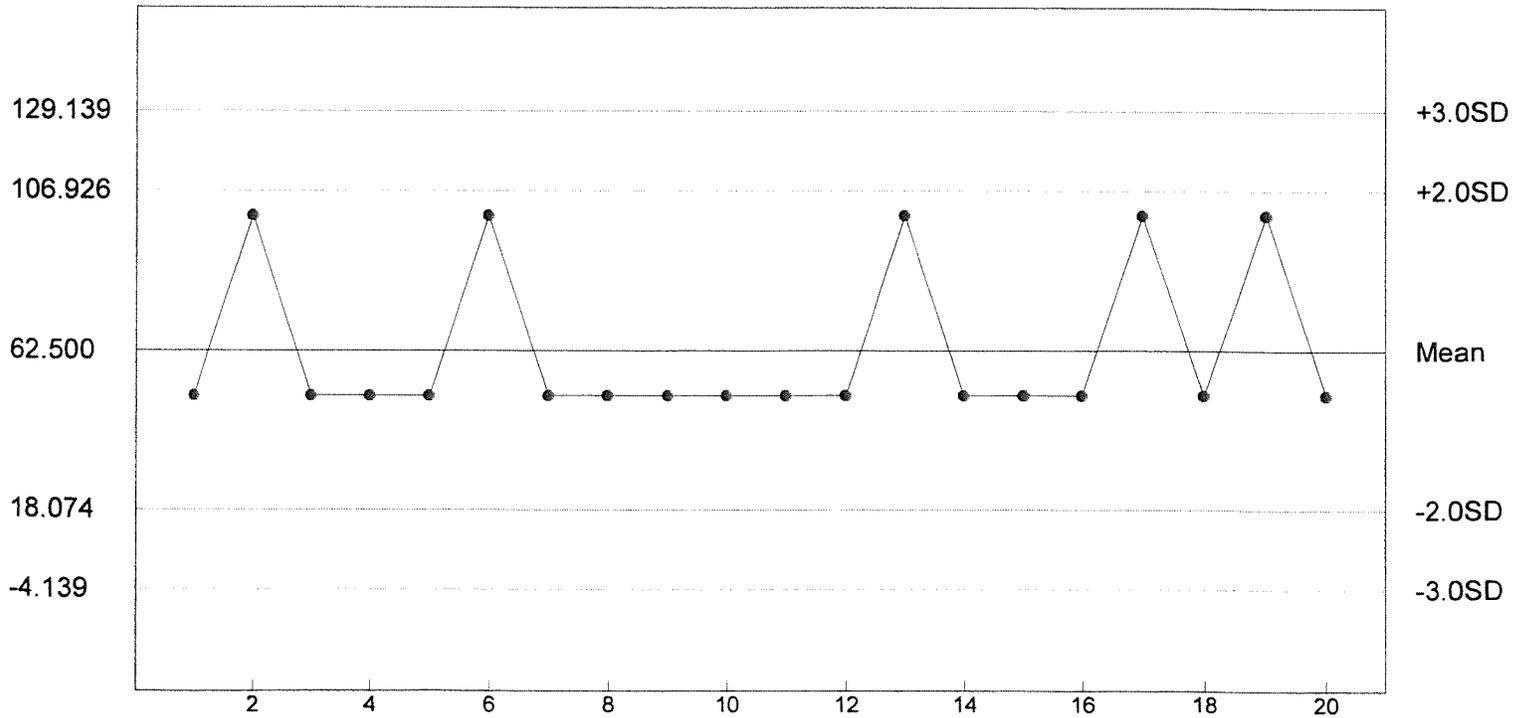
P. promelas Chronic Survival - NOEC



n= 20 Mean= 72.500 SD= 25.521 CV= 35.20% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L

P. promelas Growth - NOEC



n= 20 Mean= 62.500 SD= 22.213 CV= 35.54% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34988 PROJECT NAME Tyler - Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP Eff	H	3/19/23-10am	3/20/23-8am	12				1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP R.S.	Greyhound	3/20/23	8am	1

TYPE OF TEST 7day 24hr C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: Greyhound DATE: 3/20/23 TIME: 3:25pm RECEIVED BY AT THIS DATE/TIME: Rancey Lammitt 3/20/23 1225
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: Rancey Lammitt DATE: 3/20/23 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.8° Del

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34988 PROJECT NAME Tyler-Westside PERMIT# TPOES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP	<i>RP</i>	3/21 st 10 AM	3/22/23 8 AM	12				1

① 3/27/23 Ryan/MS

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED	TYPE OF TEST	NAME OF RECEIVING WATER	DILUTION WATER USED FOR THIS TEST

RELINQUISHED BY: [Signature] DATE: 3/22/23 TIME: 10:42 RECEIVED BY AT THIS DATE/TIME: [Signature] 3/22/23 1042

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 3/22/23 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.3 deg

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34988 PROJECT NAME Tyler-Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP	<i>[Signature]</i>	3/23/23 10am	3/24/23 8am	12				1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED	TYPE OF TEST	NAME OF RECEIVING WATER	DILUTION WATER USED FOR THIS TEST

RELINQUISHED BY: *[Signature]* DATE: 3/24/23 TIME: 1000 RECEIVED BY AT THIS DATE/TIME: Rance Lanett 3/24/23 1000

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rance Lanett DATE: 3/24/23 TIME: 1200 SAMPLE TEMP. @ RECEIPT: 11.2°C

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less (p=0.05) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING FORM

PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable

Reviewed by: _____



Huth & Associates

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 03/21/23
 FOR NET DMR**

I. <i>Ceriodaphnia dubia</i>	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	88%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	88%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
 II. <i>Pimephales promelas</i>	 Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	88%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	88%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).

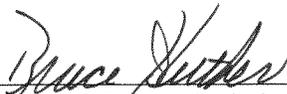
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

March 21, 2023

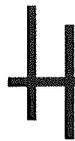
Reviewed by:



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client	City of Tyler	Sample.....	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	34988
Permit No.....	TPDES 10653-001	Begin Date.....	March 21, 2023

Results: **Pass** *Daphnia pulex* and *Pimephales promelas* survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was picked up by Huther & Associates on March 20, 2023. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using *Daphnia pulex* and a static acute 24-hour toxicity screen test using *Pimephales promelas* (*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012*).

The effluent sample was analyzed for residual chlorine (Standard Methods, 24th Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH, and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour *D. pulex* toxicity test was initiated at 1605 hours, March 21, 2023. The 24-hour *P. promelas* toxicity test was initiated at 1505 hours, March 21, 2023. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The *D. pulex* test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The *P. promelas* test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The *D. pulex* test was initiated with less than 24-hour-old organisms while the *P. promelas* test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The *D. pulex* test ended at 1605 hours, March 22, 2023. The *P. promelas* test ended at 1505 hours, March 22, 2023. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	03/20/23
LAB ID #	34988	DATE RECEIVED	03/20/23
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	03/21/23 1605
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	03/22/23 1605
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	M. Homer

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
03/21/23	Start	1	7.87	7.41	8.07	7.78	HB
03/22/23	24 Hr.	1	8.10	7.90	8.53	8.48	RP

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	1	7.41	7.78	68	96	1133	<0.01	N/A	HB
03/21/23	Control	7.87	8.07	100	62	347	-	N/A	HB

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	03/20/23
LAB ID #	34988	DATE RECEIVED	03/20/23
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	03/21/23 1505
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/22/23 1505
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
03/21/23	Start	1	7.87	7.41	8.07	7.78	HB
03/22/23	24 Hr.	1	8.09	7.61	7.35	8.46	RP

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/21/23	1	7.41	7.78	68	96	1133	<0.01	N/A	HB
03/21/23	Control	7.87	8.07	100	62	347	-	N/A	HB

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler - Westside

PROJECT NUMBER: 34988

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
CON	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	3-21-23 1605					3-22-23 1605				
TECHNICIAN	MH					MH				

Huther and Associates, Inc.

environmental toxicologists, biologists, consultants

24-HOUR PIMEPHALES PROMELAS SURVIVAL

CLIENT: Tyler - Westside

PROJECT #: 34988

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	3-21-23 1505					3-22-23 1505				
TECHNICIAN	JK					AB				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*
 CHEMICAL: Sodium Chloride
 DURATION: 48-Hours
 TEST NUMBER: 3
 TEST DATE: 03/02/23 -03/04/23
 1600 Hrs - 1600 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	0
2.0	20	0
2.5	20	3
3.0	20	17
4.0	20	20
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.75 g/L	2.62 g/L	2.89 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

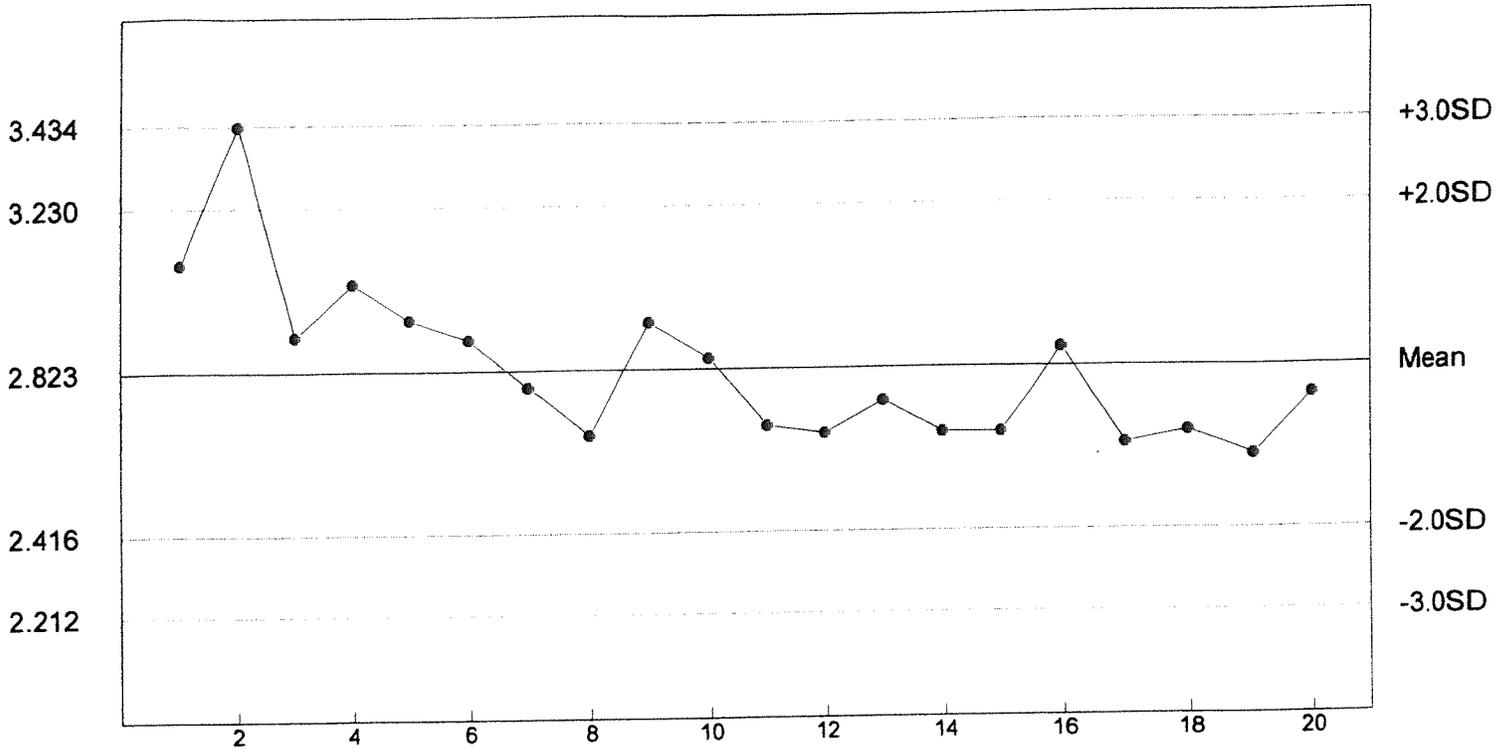
SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 48-Hours
 TEST NUMBER: 3
 TEST DATE: 03/02/23 -03/04/23
 1300 Hrs - 1300 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	0
200	40	3
400	40	21
800	40	28

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
422.26 ug/L	302.67 mg/L	589.09 mg/L

Ref. Toxicant Sodium chloride g/L

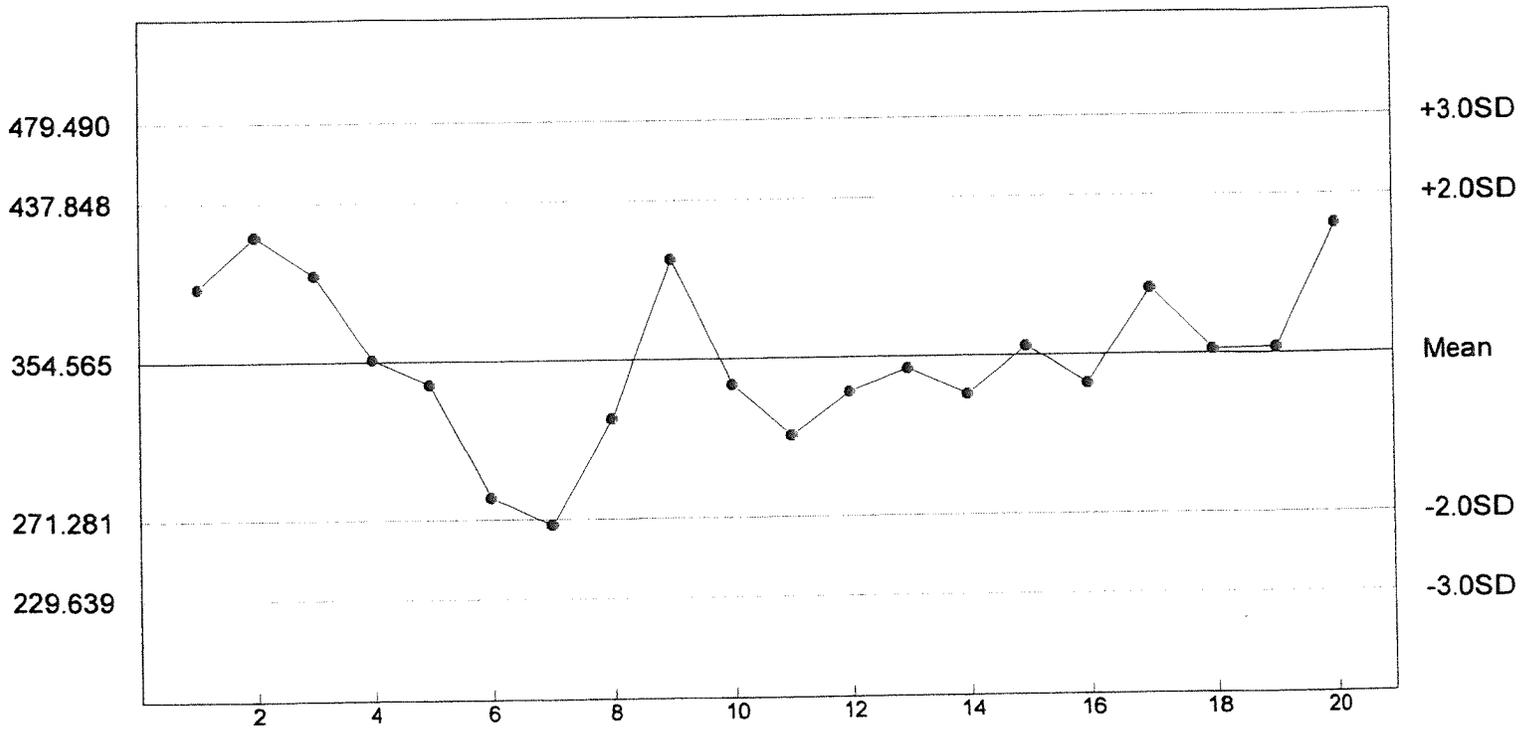
Daphnia pulex LC50



n= 20 Mean= 2.823 SD= 0.204 CV= 7.21% Min= 2.600 Max= 3.430

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 354.565 SD= 41.642 CV= 11.74% Min= 268.510 Max= 422.260

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34988 PROJECT NAME Tyler - Westside PERMIT# TPDES 11653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP Eff	A	3/19/23 - 10am	3/20/23 - 8am	12				1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP R.S.	R.S. Led	3/20/23	8am	1

TYPE OF TEST 7day 24hr C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: R.S. Led DATE: 3/20/23 TIME: 3:25p RECEIVED BY AT THIS DATE/TIME: Rance Samitt 3/20/23 1225
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: Rance Samitt DATE: 3/20/23 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.8°C

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)

DAPHNIA PULEX SURVIVAL

Dates and Times Composite Collected Date Time Date Time
 FROM: 03/19/23 1000 TO: 03/20/23 0800

Test Initiated: 1605 03/21/23 date

PERCENT SURVIVAL

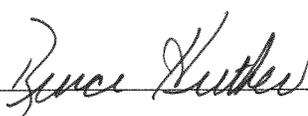
REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times
 Composite Collected

	Date	Time		Date	Time
FROM:	<u>03/19/23</u>	<u>1000</u>	TO:	<u>03/20/23</u>	<u>0800</u>

Test Initiated: 1505 03/21/23 date

PERCENT SURVIVAL

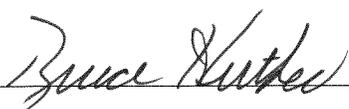
REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

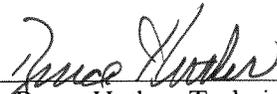
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

September 27, 2022

Reviewed by: _____



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client	City of Tyler	Sample.....	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	34412
Permit No.....	TPDES 10653-001	Begin Date.....	September 27, 2022

Results: **Pass** *Daphnia pulex* and *Pimephales promelas* survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was picked up by Huther & Associates on September 26, 2022. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using *Daphnia pulex* and a static acute 24-hour toxicity screen test using *Pimephales promelas* (*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012*).

The effluent sample was analyzed for residual chlorine (Standard Methods, 23rd Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH, and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour *D. pulex* toxicity test was initiated at 1630 hours, September 27, 2022. The 24-hour *P. promelas* toxicity test was initiated at 1620 hours, September 27, 2022. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The *D. pulex* test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The *P. promelas* test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The *D. pulex* test was initiated with less than 24-hour-old organisms while the *P. promelas* test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The *D. pulex* test ended at 1630 hours, September 28, 2022. The *P. promelas* test ended at 1620 hours, September 28, 2022. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	09/26/22
LAB ID #	34412	DATE RECEIVED	09/26/22
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	09/27/22 1630
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	09/28/22 1630
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
CONTROL WATER	Laboratory	TECHNICIAN	T. Geiger

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
09/27/22	Start	1	8.28	8.18	8.11	7.87	HB
09/28/22	24 Hr.	1	8.22	8.23	8.17	7.42	HB

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
09/27/22	1	8.18	7.87	72	90	842	<0.01	N/A	HB
09/27/22	Control	8.28	8.11	48	62	234	-	N/A	HB

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	09/26/22
LAB ID #	34412	DATE RECEIVED	09/26/22
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	09/27/22 1620
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	09/28/22 1620
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
09/27/22	Start	1	8.28	8.18	8.11	7.87	HB
09/28/22	24 Hr.	1	8.30	8.28	7.89	7.62	HB

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
09/27/22	1	8.18	7.87	72	90	842	<0.01	N/A	HB
09/27/22	Control	8.28	8.11	48	62	234	-	N/A	HB

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler-Westside

PROJECT NUMBER: 34412

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
CON	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	9-27-22 1630					9-28-22 1630				
TECHNICIAN	TG					TG				

Huther and Associates, Inc.

environmental toxicologists, biologists, consultants

24-HOUR PIMEPHALES PROMELAS SURVIVAL

CLIENT: Tyler-Westside

PROJECT #: 34412

NUMBER ORGANISMS,
0 HRS

NUMBER ORGANISMS,
24 HRS

CONC.	A	B	C	D	E	A	B	C	D	E
CON	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	9-27-22					9-28-22				
	1620					1620				
TECHNICIAN	JC					JC				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*
 CHEMICAL: Sodium Chloride
 DURATION: 48-Hours
 TEST NUMBER: 9
 TEST DATE: 09/07/22 - 09/09/22
 1500 Hrs - 1500 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	0
2.0	20	0
2.5	20	3
3.0	20	20
4.0	20	20
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.66 g/L	2.57 g/L	2.74 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

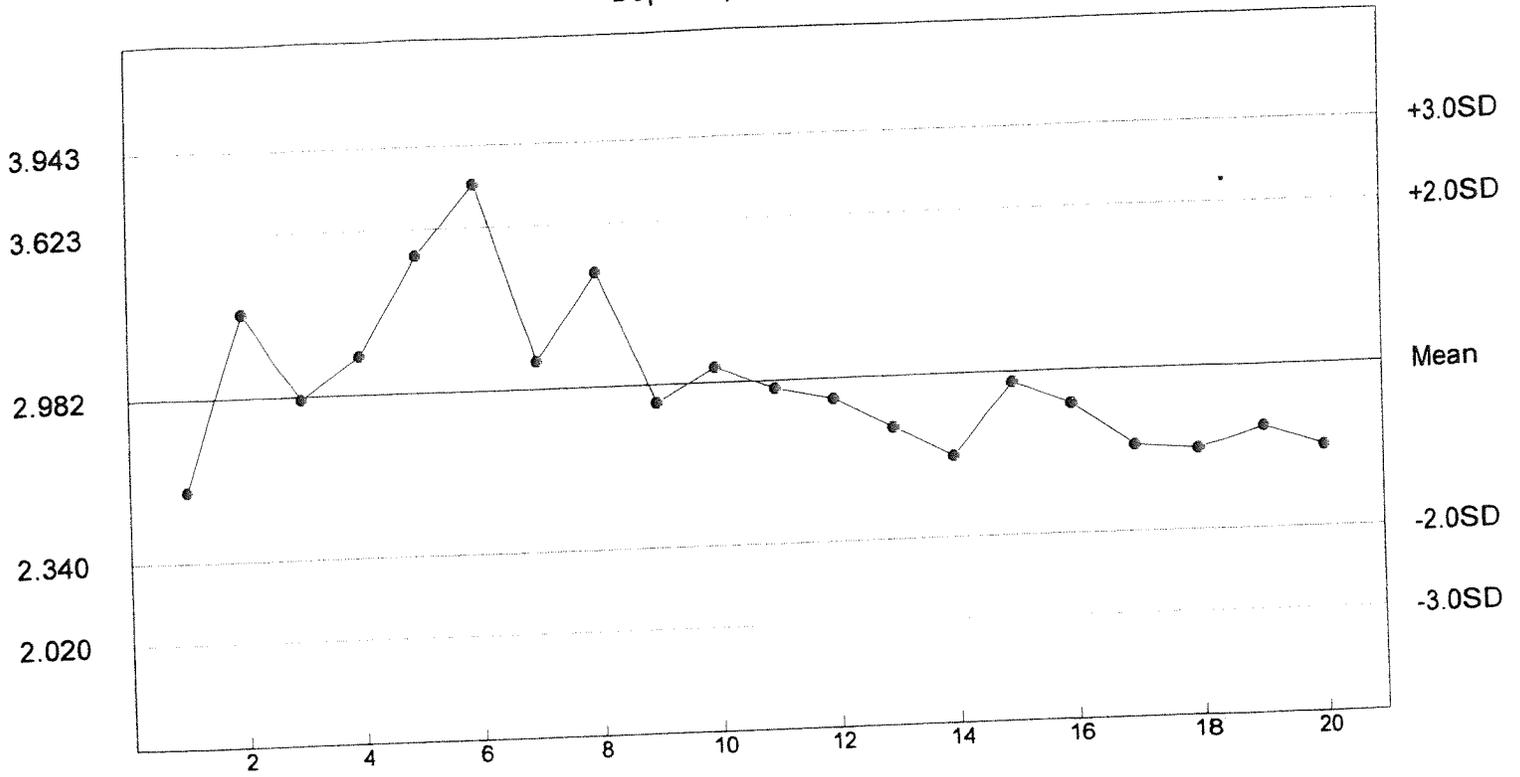
SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 48-Hours
 TEST NUMBER: 9
 TEST DATE: 09/07/22 -09/09/22
 1350 Hrs - 1350 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	8
200	40	8
400	40	24
800	40	34

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
334.28 ug/L	267.03 mg/L	418.47 mg/L

Ref. Toxicant Sodium chloride g/L

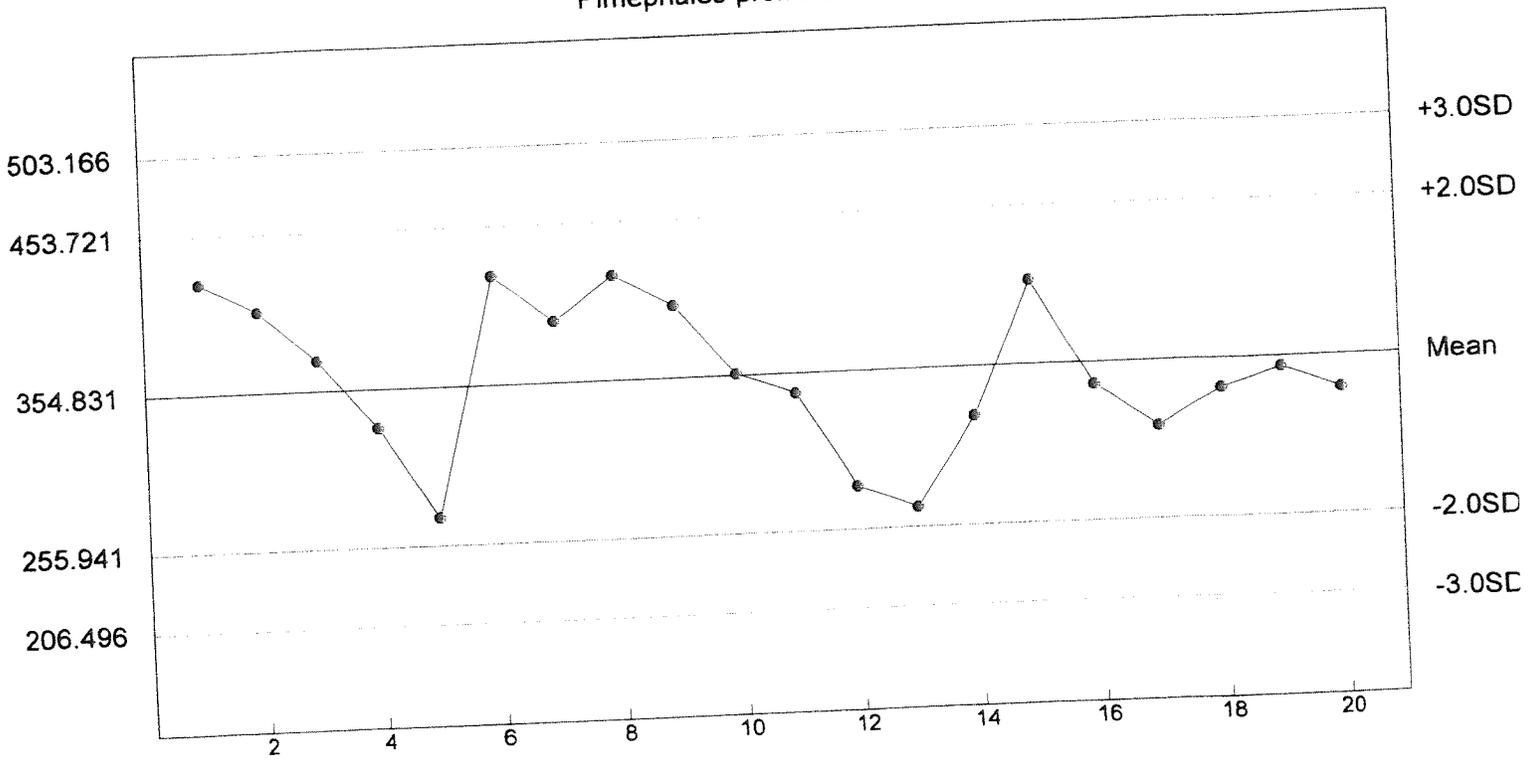
Daphnia pulex LC50



n= 20 Mean= 2.982 SD= 0.321 CV= 10.75% Min= 2.620 Max= 3.790

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 354.831 SD= 49.445 CV= 13.93% Min= 268.510 Max= 423.730

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34412 PROJECT NAME Tyler - Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
Westside-est	RST	9/25/22 10:00	9/26/22 8:00	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Westside R.S.	P.O.T.	9/26/22	8:00	1

TYPE OF TEST 7day 24hr Cerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 9/26/22 TIME: 0900 RECEIVED BY AT THIS DATE/TIME: [Signature] 9/26/22 0900
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: _____ Greyhound _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 9/26/22 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.7 28.1

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)
DAPHNIA PULEX SURVIVAL

Dates and Times Composite Collected
 FROM: 09/25/22 1000 TO: 09/26/22 0800

Test Initiated: 1630 09/27/22 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times Composite Collected
 FROM: 09/25/22 1000 TO: 09/26/22 0800

Test Initiated: 1620 09/27/22 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

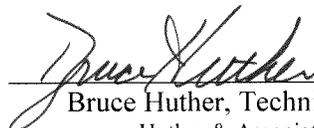
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

June 21, 2022

Reviewed by:



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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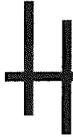
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TOXICITY TEST REPORT - CHRONIC

Client City of Tyler Sample Outfall 001
Facility Westside WWTF Laboratory I.D. 33767
Permit No. TPDES 10653-001 Begin Date June 21, 2022

Results: Pass Ceriodaphnia dubia survival and reproduction and Pimephales promelas survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were delivered by the client to Huthur & Associates on June 20, June 22, and June 24, 2022. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. Two toxicity tests were requested: a seven-day Ceriodaphnia dubia survival and reproduction test (EPA Method 1002.0), and a seven-day Pimephales promelas larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP Ceriodaphnia dubia



The seven-day Ceriodaphnia dubia survival and reproduction test was initiated at 1500 hours, June 21, 2022. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). C. dubia neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL Selenastrum capricornutum and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of five replicate beakers of eight larvae each in receiving water was conducted currently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1540 hours, June 28, 2022. Survival and growth (weight) data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Pimephales promelas

There was 100% survival to *P. promelas* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

GROWTH
Pimephales promelas

P. promelas growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 8.0%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT City of Tyler, Westside WWTF	SAMPLE TYPE 24 Hour Composite
TPDES # 10653-001	DATE COLLECTED 06/20/22 06/22/22 06/24/22
LAB ID # 33767	DATE RECEIVED 06/20/22 06/22/22 06/24/22
TEST TYPE 7 Day Chronic	BEGIN DATE/TIME 06/21/22 1500
TEST ORGANISM <i>Ceriodaphnia dubia</i>	END DATE/TIME 06/28/22 1500
ORGANISM AGE < 24-Hours	TEST TEMPERATURE (°C) 25 ± 1
ORGANISM SOURCE In House	PHOTO PERIOD 16-hr. Light 8-hr. Dark
RECEIVING WATER Black Fork Creek	LIGHT INTENSITY 50-100 ft. cndl.
DILUTION WATER Black Fork Creek	TECHNICIAN M. Horner

SURVIVAL & REPRODUCTION SUMMARY

Performance Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	3	2	2	3	4	4	4	5	3	2
	3	2	2	3	4	4	4	5	3	2
06/26/22	10	7	9	10	6	8	8	11	7	8
	13	9	11	13	10	12	12	16	10	10
06/27/22	A	A	A	A	A	A	A	A	A	A
	13	9	11	13	10	12	12	16	10	10
06/28/22	14	12	13	12	12	13	12	13	14	13
	27	21	24	25	22	25	24	29	24	23
x # Young 24.4		C.V. 9.50%								
x%Survival 100%		C.V. 0.00%								

True Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	3	3	4	5	2	2	3	2	3	4
	3	3	4	5	2	2	3	2	3	4
06/26/22	6	9	10	8	11	9	7	7	7	8
	9	12	14	13	13	11	10	9	10	12
06/27/22	A	A	A	A	A	A	A	A	A	A
	9	12	14	13	13	11	10	9	10	12
06/28/22	12	13	13	13	14	12	13	12	12	14
	21	25	27	26	27	23	23	21	22	26
x # Young 24.1		C.V. 9.87%								
x%Survival 100%		C.V. 0.00%								

28%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	2	5	2	2	4	3	3	2	5	3
	2	5	2	2	4	3	3	2	5	3
06/26/22	10	7	10	6	8	11	9	7	8	8
	12	12	12	8	12	14	12	9	13	11
06/27/22	A	A	A	A	A	A	A	A	A	A
	12	12	12	8	12	14	12	9	13	11
06/28/22	13	14	12	13	12	13	14	12	13	12
	25	26	24	21	24	27	26	21	26	23
x # Young 24.3		C.V. 8.69%								
x%Survival 100%		C.V. 0.00%								

37%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	3	2	3	4	4	4	5	3	2	3
	3	2	3	4	4	4	5	3	2	3
06/26/22	8	8	8	9	10	7	10	8	9	6
	11	10	11	13	14	11	15	11	11	9
06/27/22	A	A	A	A	A	A	A	A	A	A
	11	10	11	13	14	11	15	11	11	9
06/28/22	14	14	13	14	12	13	13	12	12	13
	25	24	24	27	26	24	28	23	23	22
x # Young 24.6		C.V. 7.71%								
x%Survival 100%		C.V. 0.00%								

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huth and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33767

Test Date: June 21, 2022

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	3	5	2	3	2	4	3	2	3	3
	3	5	2	3	2	4	3	2	3	3
06/26/22	9	8	6	6	8	11	7	10	7	9
	12	13	8	9	10	15	10	12	10	12
06/27/22	A	A	A	A	A	A	A	A	A	A
	12	13	8	9	10	15	10	12	10	12
06/28/22	13	14	14	12	13	12	13	13	13	14
	25	27	22	21	23	27	23	25	23	26
<p>x# Young 24.2 C.V. 8.67%</p> <p>x%Survival 100% C.V. 0.00%</p>										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	2	3	5	4	3	4	2	3	3	2
	2	3	5	4	3	4	2	3	3	2
06/26/22	10	6	9	9	7	6	8	10	11	8
	12	9	14	13	10	10	10	13	14	10
06/27/22	A	A	A	A	A	A	A	A	A	A
	12	9	14	13	10	10	10	13	14	10
06/28/22	14	12	13	14	13	14	12	13	12	13
	26	21	27	27	23	24	22	26	26	23
<p>x# Young 24.5 C.V. 8.87%</p> <p>x%Survival 100% C.V. 0.00%</p>										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/22/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/23/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/24/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/22	4	3	4	2	5	4	3	2	3	5
	4	3	4	2	5	4	3	2	3	5
06/26/22	8	10	10	9	7	9	6	8	11	9
	12	13	14	11	12	13	9	10	14	14
06/27/22	A	A	A	A	A	A	A	A	A	A
	12	13	14	11	12	13	9	10	14	14
06/28/22	14	14	13	12	13	13	14	12	14	13
	26	27	27	23	25	26	23	22	28	27
<p>x# Young 25.4 C.V. 8.13%</p> <p>x%Survival 100% C.V. 0.00%</p>										

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33767

Test Date: June 21, 2022

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/21/22	Start	25.0	1	8.06	7.94	7.78	7.75	7.74	7.73	7.73	AE
06/22/22	24 Hr.	23.9	1	8.29	8.15	7.98	7.90	7.87	7.84	7.86	AE
06/22/22	Renew	25.0	1	8.36	8.27	8.07	7.96	7.86	7.80	7.83	AE
06/23/22	48 Hr.	23.8	1	7.93	7.85	7.70	7.64	7.65	7.62	7.66	AE
06/23/22	Renew	25.0	2	8.02	7.92	7.74	7.68	7.69	7.66	7.67	AE
06/24/22	72 Hr.	24.0	2	8.55	8.36	8.29	8.31	8.26	8.30	8.28	ID
06/24/22	Renew	25.0	2	8.33	8.07	7.87	7.80	7.77	7.74	7.76	ID
06/25/22	96 Hr.	24.0	2	8.61	8.38	8.20	8.12	8.11	8.13	8.12	JC
06/25/22	Renew	25.0	3	8.30	8.01	7.74	7.67	7.62	7.61	7.62	ID
06/26/22	120 Hr.	23.9	3	8.58	8.13	8.13	8.14	8.15	8.20	8.23	HB
06/26/22	Renew	25.0	3	8.43	7.80	7.63	7.60	7.54	7.55	7.60	HB
06/27/22	144 Hr.	24.0	3	8.58	8.43	8.29	8.25	8.24	8.26	8.29	AE
06/27/22	Renew	25.0	3	8.51	8.06	8.08	8.11	8.12	8.15	8.17	HB
06/28/22	168 Hr.	23.9	3	8.46	8.40	8.30	8.25	8.21	8.22	8.26	AE

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/21/22	Start	25.0	1	7.55	7.95	7.98	8.50	7.96	8.04	8.09	AE
06/22/22	24 Hr.	23.9	1	8.19	7.98	8.04	8.39	8.01	7.92	7.85	AE
06/22/22	Renew	25.0	1	7.81	8.29	7.68	8.01	7.78	8.21	7.80	AE
06/23/22	48 Hr.	23.8	1	7.73	8.06	7.67	8.34	8.22	8.51	8.30	AE
06/23/22	Renew	25.0	2	7.36	8.30	8.53	8.52	8.57	8.52	8.34	AE
06/24/22	72 Hr.	24.0	2	7.06	7.40	7.90	7.93	7.23	7.22	7.86	ID
06/24/22	Renew	25.0	2	7.15	7.16	7.33	7.82	7.63	7.63	8.56	ID
06/25/22	96 Hr.	24.0	2	7.52	7.57	7.47	7.49	7.40	7.49	7.40	JC
06/25/22	Renew	25.0	3	7.94	7.30	7.22	7.30	8.43	7.70	7.08	ID
06/26/22	120 Hr.	23.9	3	7.42	7.31	7.91	7.13	7.23	7.31	7.38	HB
06/26/22	Renew	25.0	3	8.38	8.36	8.36	8.36	5.84	8.22	8.40	HB
06/27/22	144 Hr.	24.0	3	8.22	7.98	8.24	8.11	8.04	7.99	7.00	AE
06/27/22	Renew	25.0	3	7.98	7.77	7.69	7.64	7.43	7.58	7.46	HB
06/28/22	168 Hr.	23.9	3	8.26	8.11	8.37	8.10	7.61	8.23	8.22	AE

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33767

Test Date: June 21, 2022

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	1	7.72	7.08	96	112	1002	<0.01	N/A	AE
06/23/22	2	7.84	8.19	80	96	1016	<0.01	N/A	AE
06/25/22	3	7.93	7.22	84	116	820	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	RS1	7.94	7.95	92	44	227	<0.01	N/A	AE
06/23/22	RS2	7.92	8.30	82	48	233	<0.01	N/A	AE
06/25/22	RS3	7.62	7.08	84	42	247	<0.01	N/A	ID

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	21.000	27.000	24.100
2	28% Effluent	10	21.000	27.000	24.300
3	37% Effluent	10	22.000	28.000	24.600
4	50% Effluent	10	21.000	27.000	24.200
5	66% Effluent	10	21.000	27.000	24.500
6	88% Effluent	10	22.000	28.000	25.400

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	5.656	2.378	0.752	9.87
2	28% Effluent	4.456	2.111	0.667	8.69
3	37% Effluent	3.600	1.897	0.600	7.71
4	50% Effluent	4.400	2.098	0.663	8.67
5	66% Effluent	4.722	2.173	0.687	8.87
6	88% Effluent	4.267	2.066	0.653	8.13

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	5	16	16	22	1

Calculated Chi-Square goodness of fit test statistic = 8.6011
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 0.47

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	11.083	2.217	0.491
Within (Error)	54	243.900	4.517	
Total	59	254.983		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	24.100	24.100		
2	28% Effluent	24.300	24.300	-0.210	
3	37% Effluent	24.600	24.600	-0.526	
4	50% Effluent	24.200	24.200	-0.105	
5	66% Effluent	24.500	24.500	-0.421	
6	88% Effluent	25.400	25.400	-1.368	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	28% Effluent	10	2.196	9.1	-0.200
3	37% Effluent	10	2.196	9.1	-0.500
4	50% Effluent	10	2.196	9.1	-0.100
5	66% Effluent	10	2.196	9.1	-0.400
6	88% Effluent	10	2.196	9.1	-1.300

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	06/20/22 06/22/22 06/24/22
LAB ID #	33767	DATE RECEIVED	06/20/22 06/22/22 06/24/22
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	06/21/22 1540
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	06/28/22 1540
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	R. Stogner

SURVIVAL SUMMARY

Conc.	06/22/22					06/23/22					06/24/22					06/25/22					06/26/22				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	06/27/22					06/28/22					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4670	0.4820	0.4250	0.4650	0.4700	0.4618	4.68
TCON	0.4350	0.4840	0.4210	0.4260	0.4450	0.4422	5.67
28%	0.4610	0.4750	0.4860	0.4590	0.4670	0.4696	2.36
37%	0.4880	0.4190	0.4570	0.4650	0.4820	0.4622	5.88
50%	0.4350	0.4610	0.4790	0.4820	0.4250	0.4564	5.62
66%	0.4670	0.4660	0.4210	0.4750	0.4890	0.4636	5.51
88%	0.4540	0.4720	0.4830	0.4220	0.4710	0.4604	5.18

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33767

Test Date: June 21, 2022

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/21/22	Start	25.0	1	8.06	7.94	7.78	7.75	7.74	7.73	7.73	AE
06/22/22	24 Hr.	24.4	1	8.33	8.25	8.12	8.09	8.06	8.03	8.11	AE
06/22/22	Renew	25.0	1	8.36	8.27	8.07	7.96	7.86	7.80	7.83	AE
06/23/22	48 Hr.	24.3	1	8.24	8.16	8.09	8.05	8.04	8.04	8.08	AE
06/23/22	Renew	25.0	2	8.02	7.92	7.74	7.68	7.69	7.66	7.67	AE
06/24/22	72 Hr.	24.4	2	8.62	8.40	8.30	8.28	8.25	8.26	8.32	ID
06/24/22	Renew	25.0	2	8.33	8.07	7.87	7.80	7.77	7.74	7.76	ID
06/25/22	96 Hr.	24.2	2	8.36	8.16	8.07	8.05	8.03	8.05	8.11	ID
06/25/22	Renew	25.0	3	8.30	8.01	7.74	7.67	7.62	7.61	7.62	ID
06/26/22	120 Hr.	24.4	3	8.70	8.42	8.19	8.05	8.05	7.99	7.96	HB
06/26/22	Renew	25.0	3	8.43	7.80	7.63	7.60	7.54	7.55	7.60	HB
06/27/22	144 Hr.	24.2	3	8.60	8.23	8.17	8.02	8.04	7.98	7.95	HB
06/27/22	Renew	25.0	3	8.51	8.06	8.08	8.11	8.12	8.15	8.17	HB
06/28/22	168 Hr.	24.2	3	8.62	8.46	8.21	8.07	8.02	7.97	7.96	AE

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/21/22	Start	25.0	1	7.55	7.95	7.98	8.50	7.96	8.04	8.09	AE
06/22/22	24 Hr.	24.4	1	8.52	7.81	8.50	8.30	7.86	8.45	7.78	AE
06/22/22	Renew	25.0	1	7.81	8.29	7.68	8.01	7.78	8.21	7.80	AE
06/23/22	48 Hr.	24.3	1	8.43	8.40	8.21	8.30	7.98	8.30	8.31	AE
06/23/22	Renew	25.0	2	7.36	8.30	8.53	8.52	8.57	8.52	8.34	AE
06/24/22	72 Hr.	24.4	2	7.71	7.09	8.51	7.51	8.60	7.25	7.80	ID
06/24/22	Renew	25.0	2	7.15	7.16	7.33	7.82	7.63	7.63	8.56	ID
06/25/22	96 Hr.	24.2	2	8.39	7.14	7.12	7.93	8.46	8.16	7.24	ID
06/25/22	Renew	25.0	3	7.94	7.30	7.22	7.30	8.43	7.70	7.08	ID
06/26/22	120 Hr.	24.4	3	7.40	7.74	7.71	7.43	7.09	7.14	7.00	HB
06/26/22	Renew	25.0	3	8.38	8.36	8.36	8.36	5.84	8.22	8.40	HB
06/27/22	144 Hr.	24.2	3	7.48	7.71	7.71	7.25	7.10	7.13	7.93	HB
06/27/22	Renew	25.0	3	7.98	7.77	7.69	7.64	7.43	7.58	7.46	HB
06/28/22	168 Hr.	24.2	3	8.03	7.78	7.75	7.80	8.06	8.01	7.38	AE

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33767

Test Date: June 21, 2022

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	1	7.72	7.08	96	112	1002	<0.01	N/A	AE
06/23/22	2	7.84	8.19	80	96	1016	<0.01	N/A	AE
06/25/22	3	7.93	7.22	84	116	820	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	RS1	7.94	7.95	92	44	227	<0.01	N/A	AE
06/23/22	RS2	7.92	8.30	82	48	233	<0.01	N/A	AE
06/25/22	RS3	7.62	7.08	84	42	247	<0.01	N/A	ID

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.421	0.484	0.442
2	28% Effluent	5	0.459	0.486	0.470
3	37% Effluent	5	0.419	0.488	0.462
4	50% Effluent	5	0.425	0.482	0.456
5	66% Effluent	5	0.421	0.489	0.464
6	88% Effluent	5	0.422	0.483	0.460

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.025	0.011	5.67
2	28% Effluent	0.000	0.011	0.005	2.36
3	37% Effluent	0.001	0.027	0.012	5.88
4	50% Effluent	0.001	0.026	0.011	5.62
5	66% Effluent	0.001	0.026	0.011	5.51
6	88% Effluent	0.001	0.024	0.011	5.18

Shapiro - Wilk's Test For Normality

D = 0.013

W = 0.963

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data **Pass** normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.96

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.002	0.000	0.774
Within (Error)	24	0.013	0.001	
Total	29	0.016		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	0.442	0.442		
2	28% Effluent	0.470	0.470	-1.828	
3	37% Effluent	0.462	0.462	-1.334	
4	50% Effluent	0.456	0.456	-0.947	
5	66% Effluent	0.464	0.464	-1.428	
6	88% Effluent	0.460	0.460	-1.214	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	5			
2	28% Effluent	5	0.035	8.0	-0.027
3	37% Effluent	5	0.035	8.0	-0.020
4	50% Effluent	5	0.035	8.0	-0.014
5	66% Effluent	5	0.035	8.0	-0.021
6	88% Effluent	5	0.035	8.0	-0.018

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

CLIENT Tyler-Westside
 OUTFALL 001
 LAB ID # 33767

START DATE/TIME 6-21-22 MH 1500
 END DATE/TIME 6-28-22 MH 1500

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/22	A	A	A	A	A	A	A	A	A	A	MH	1500
6/23	A	A	A	A	A	A	A	A	A	A	TG	1315
6/24	A	A	A	A	A	A	A	A	A	A	Jc	1145
6/25	3	2	2	3	4	4	4	5	3	2	TG	1430
6/26	10	7	9	10	6	8	8	11	7	8	TG	1315
6/27	A	A	A	A	A	A	A	A	A	A	MH	1430
6/28	14	12	13	12	12	13	12	13	14	13	MH	1500
	27	21	24	25	22	25	24	29	24	23		

\bar{x} # Young w/o Dead = 24.4 CV% = 9.50

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/22	A	A	A	A	A	A	A	A	A	A	MH	1500
6/23	A	A	A	A	A	A	A	A	A	A	TG	1315
6/24	A	A	A	A	A	A	A	A	A	A	Jc	1145
6/25	3	3	4	5	2	2	3	2	3	4	TG	1430
6/26	6	9	10	8	11	9	7	7	7	8	TG	1315
6/27	A	A	A	A	A	A	A	A	A	A	MH	1430
6/28	12	13	13	13	14	12	13	12	12	14	MH	1500
	21	25	27	26	27	23	23	21	22	26		

\bar{x} # Young w/o Dead = 24.1 CV% = 9.87

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/22	A	A	A	A	A	A	A	A	A	A	MH	1500
6/23	A	A	A	A	A	A	A	A	A	A	TG	1315
6/24	A	A	A	A	A	A	A	A	A	A	Jc	1145
6/25	2	5	2	2	4	3	3	2	5	3	TG	1430
6/26	10	7	10	6	8	11	9	7	8	8	TG	1315
6/27	A	A	A	A	A	A	A	A	A	A	MH	1430
6/28	13	14	12	13	12	13	14	12	13	12	MH	1500
	25	26	24	21	24	27	26	21	26	23		

\bar{x} # Young w/o Dead = 24.3 CV% = 8.69

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/22	A	A	A	A	A	A	A	A	A	A	MH	1500
6/23	A	A	A	A	A	A	A	A	A	A	TG	1315
6/24	A	A	A	A	A	A	A	A	A	A	Jc	1145
6/25	3	2	3	4	4	4	5	3	2	3	TG	1430
6/26	8	8	8	9	10	7	10	8	9	8	TG	1315
6/27	A	A	A	A	A	A	A	A	A	A	MH	1430
6/28	14	14	13	14	12	13	13	12	12	13	MH	1500
	25	24	24	27	26	24	28	23	23	22		

\bar{x} # Young w/o Dead = 24.6 CV% = 7.71

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

**7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY: Tyler Westside DATE/TIME STARTED: 6/21/22 89 1540
 OUTFALL #: 001 PROJECT #: 33767 DATE/TIME ENDED: 6/28/22 89 1840
 ORGANISM ID#: RP0-22-171

Cont.	6/22/22 P5 1540					6/23/22 V 1015					6/24/22 HB 0810					6-25-22 TG 1200					6-26-22 V 1055				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Pen	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Ten	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
60	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Cont.	6/27/22 P3 1010					6/28/22 P5 1540					C.V. %
	A	B	C	D	E	A	B	C	D	E	
Pen	8	8	8	8	8	8	8	8	8	8	100.0
Ten	8	8	8	8	8	8	8	8	8	8	100.0
28	8	8	8	8	8	8	8	8	8	8	100.0
37	8	8	8	8	8	8	8	8	8	8	100.0
50	8	8	8	8	8	8	8	8	8	8	100.0
60	8	8	8	8	8	8	8	8	8	8	100.0
88	8	8	8	8	8	8	8	8	8	8	100.0

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

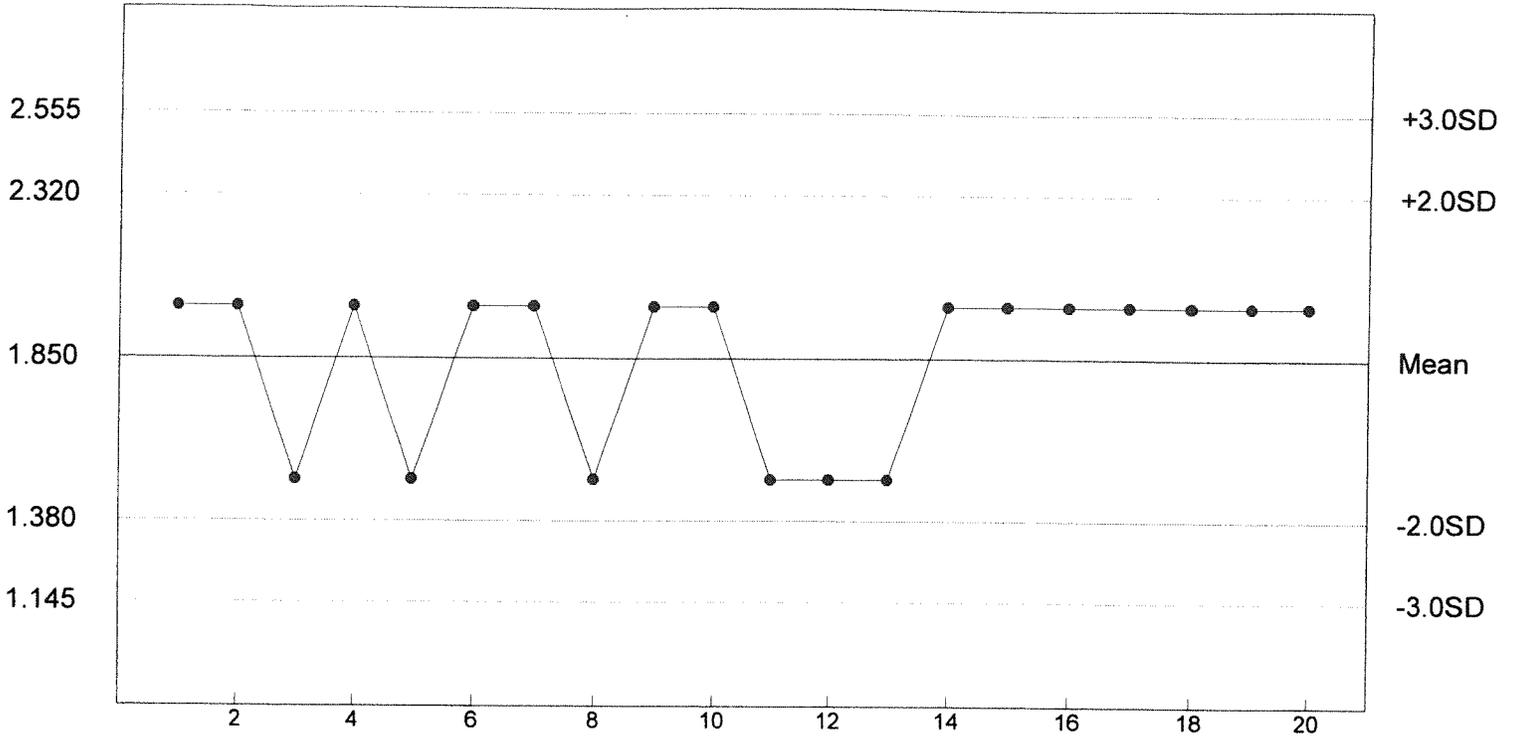
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 6
 TEST DATE: 06/01/22 - 06/08/22
 1545 Hrs - 1545 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	0
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.5 g/L	2.0 g/L	1.0 g/L	0.5 g/L

Reference Tox Sodium Chloride g/L

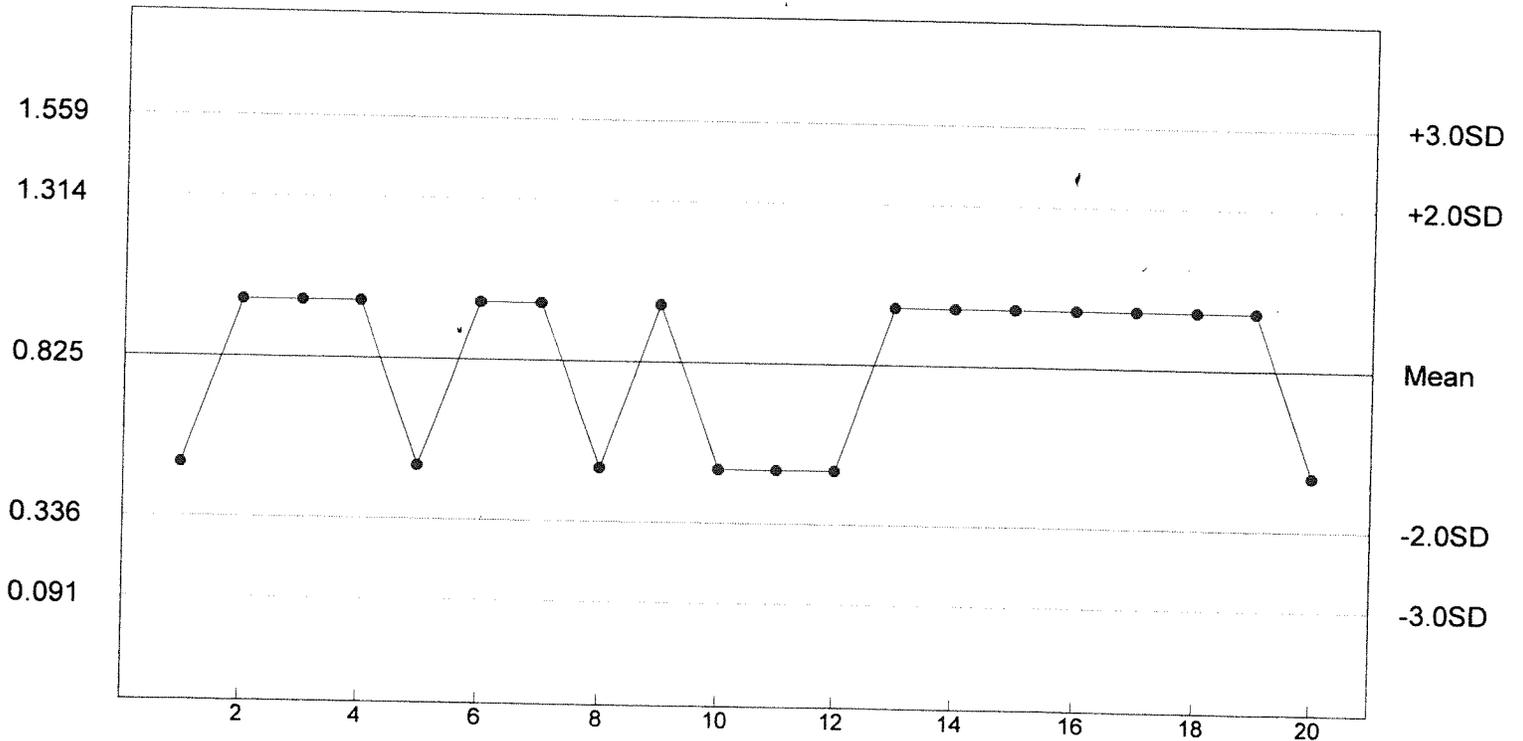
C. dubia Survival - NOEC



n= 20 Mean= 1.850 SD= 0.235 CV= 12.71% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.825 SD= 0.245 CV= 29.66% Min= 0.500 Max= 1.000

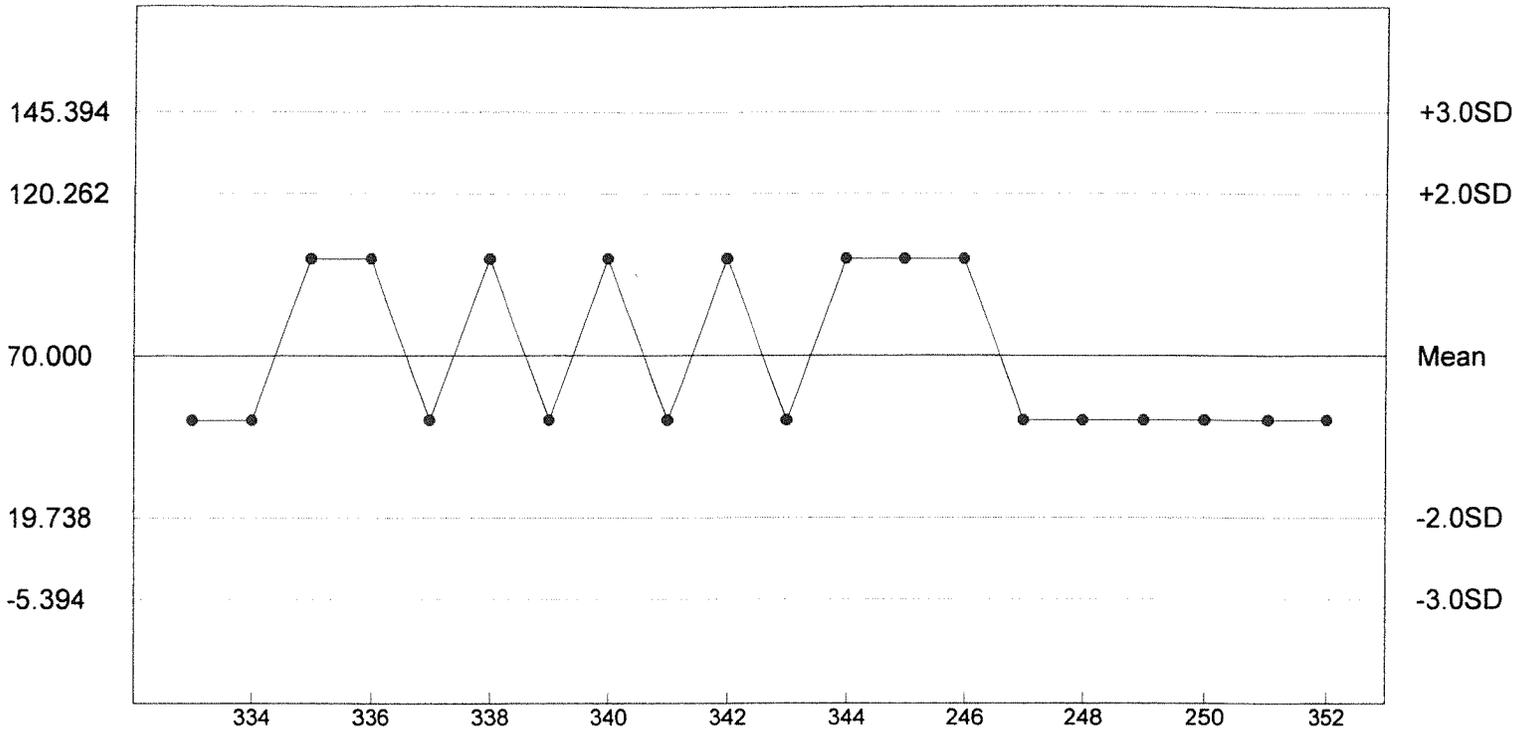
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 6
 TEST DATE: 06/01/22 - 06/08/22
 1600 Hrs -1600 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	1
100	40	15
200	40	26
400	40	40
800	40	40

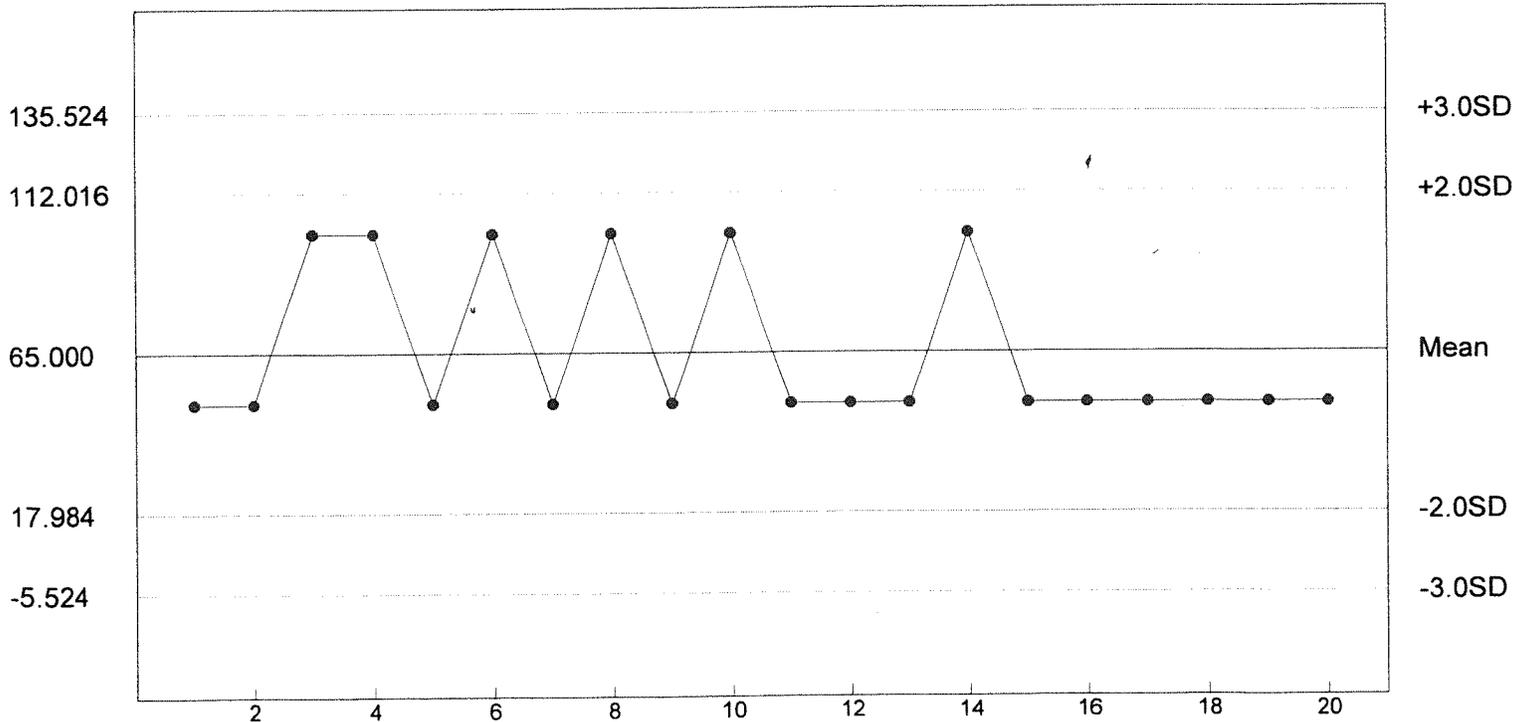
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



n= 20 Mean= 70.000 SD= 25.131 CV= 35.90% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



n= 20 Mean= 65.000 SD= 23.508 CV= 36.17% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33767 PROJECT NAME Tyler Westside PERMIT# TADES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP EFG	W.S. Brown	6/14/12 10:00	6/14/12 8:00	12		3		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP R-5	W.S.	6/20/12	6:00am	1

TYPE OF TEST 7 day 24hr C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: Estelita Lopez DATE: 6/20/12 TIME: 6:00am RECEIVED BY AT THIS DATE/TIME: Riley Taylor
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered X Other _____
 RECEIVED: RS DATE: 6/20/12 TIME: 1030 SAMPLE TEMP. @ RECEIPT: 1.1 IRI

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33767 PROJECT NAME Tyler - Westside PERMIT# TPOES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP Eff	WS Personnel	6/21/22 1900	6/22/22 800	12		X		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP R.S.	E.P.	6-22-22	8am	1

TYPE OF TEST Today 24hr C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: _____ DATE: 6-22-22 TIME: 10:50am RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 6/22/22 TIME: 1050 SAMPLE TEMP. @ RECEIPT. 4.6 DEI

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33767 PROJECT NAME Tyler - Westside PERMIT# TROES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSP EFF.	W.S. Resource	6/23/22 10am	6/24/22 8m	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S. R.S.	E-P	6/24/22	8am	1

TYPE OF TEST 7day 24hr C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/24/22 TIME: 11:5 RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 METHOD OF SHIPMENT: _____ Greyhound _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 6/24/22 TIME: 11:5 SAMPLE TEMP. @ RECEIPT: 79.7F

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less (p=0.05) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

TABLE I (SHEET 4 OF 4)
 BIOMONITORING REPORTING FORM
 PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 06/21/22
 FOR NET DMR**

I. <i>Ceriodaphnia dubia</i>	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	100%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	100%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
II. <i>Pimephales promelas</i>	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	100%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	100%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).

**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia

September 27, 2022

Reviewed by:



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client City of Tyler SampleOutfall 001
Facility Westside WWTF Laboratory I.D. 34412
Permit No. TPDES 10653-001 Begin Date September 27, 2022

Results: Pass Ceriodaphnia dubia survival and reproduction at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up at the facility by Huther & Associates on September 26, September 28 and September 30, 2022. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. One toxicity test was requested: a seven-day Ceriodaphnia dubia survival and reproduction test (EPA Method 1002.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP Ceriodaphnia dubia



The seven-day Ceriodaphnia dubia survival and reproduction test was initiated at 1530 hours, September 27, 2022. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). C. dubia neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL Selenastrum capricornutum and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test organisms and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. The test ended at 1530 hours, October 4, 2022. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

REPRODUCTION
Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 9.15**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT City of Tyler, Westside WWTF	SAMPLE TYPE 24 Hour Composite
TPDES # 10653-001	DATE COLLECTED 09/26/22 09/28/22 09/30/22
LAB ID # 34412	DATE RECEIVED 09/26/22 09/28/22 09/30/22
TEST TYPE 7 Day Chronic	BEGIN DATE/TIME 09/27/22 1530
TEST ORGANISM <i>Ceriodaphnia dubia</i>	END DATE/TIME 10/04/22 1530
ORGANISM AGE < 24-Hours	TEST TEMPERATURE (°C) 25 ± 1
ORGANISM SOURCE In House	PHOTO PERIOD 16-hr. Light 8-hr. Dark
RECEIVING WATER Black Fork Creek	LIGHT INTENSITY 50-100 ft. cndl.
DILUTION WATER Black Fork Creek	TECHNICIAN M. Horner

SURVIVAL & REPRODUCTION SUMMARY

Performance Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	4	3	3	5	4	4	4	3	2	3
10/02/22	7	11	9	10	8	11	8	7	6	10
10/03/22	11	14	12	15	12	15	12	10	8	13
	A	A	A	A	A	A	A	A	A	A
10/04/22	11	14	12	13	13	14	12	14	13	14
	14	14	12	13	13	14	12	14	13	14
	25	28	24	28	25	29	24	24	21	27
x# Young 25.5 C.V. 9.65% x%Survival 100% C.V. 0.00%										

True Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	5	5	4	5	2	4	2	2	2	3
10/02/22	10	9	9	7	6	8	7	11	6	7
10/03/22	15	14	13	12	8	12	9	13	8	10
	A	A	A	A	A	A	A	A	A	A
10/04/22	13	13	13	12	12	12	14	14	14	14
	28	27	26	24	20	24	23	27	22	24
x# Young 24.5 C.V. 10.23% x%Survival 100% C.V. 0.00%										

28%Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	5	3	4	4	3	4	2	2	5	4
10/02/22	9	8	8	10	11	7	11	10	6	11
10/03/22	14	11	12	14	14	11	13	12	11	15
	A	A	A	A	A	A	A	A	A	A
10/04/22	12	12	12	12	13	12	14	13	14	12
	26	23	24	26	27	23	27	25	25	27
x# Young 25.3 C.V. 6.19% x%Survival 100% C.V. 0.00%										

37%Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	3	3	2	5	2	4	3	2	2	5
10/02/22	9	11	6	7	8	8	8	6	6	9
10/03/22	12	14	8	12	10	12	11	8	8	14
	A	A	A	A	A	A	A	A	A	A
10/04/22	13	13	13	14	12	13	13	12	14	14
	25	27	21	26	22	25	24	20	22	28
x# Young 24.0 C.V. 11.11% x%Survival 100% C.V. 0.00%										

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34412

Test Date: September 27, 2022

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	5	2	3	5	5	4	2	2	3	3
	5	2	3	5	5	4	2	2	3	3
10/02/22	7	9	6	11	9	11	10	7	11	8
	12	11	9	16	14	15	12	9	14	11
10/03/22	A	A	A	A	A	A	A	A	A	A
	12	11	9	16	14	15	12	9	14	11
10/04/22	13	13	13	13	14	12	14	12	13	13
	25	24	22	29	28	27	26	21	27	24
x# Young 25.3 C.V. 10.21% x%Survival 100% C.V. 0.00%										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	3	3	5	3	5	4	2	2	3	2
	3	3	5	3	5	4	2	2	3	2
10/02/22	7	9	6	6	9	9	8	11	7	9
	10	12	11	9	14	13	10	13	10	11
10/03/22	A	A	A	A	A	A	A	A	A	A
	10	12	11	9	14	13	10	13	10	11
10/04/22	12	12	12	12	13	13	13	13	12	14
	22	24	23	21	27	26	23	26	22	25
x# Young 23.9 C.V. 8.47% x%Survival 100% C.V. 0.00%										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
09/28/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/29/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
09/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
10/01/22	2	5	3	2	5	2	2	5	3	4
	2	5	3	2	5	2	2	5	3	4
10/02/22	11	7	7	7	7	9	10	8	11	9
	13	12	10	9	12	11	12	13	14	13
10/03/22	A	A	A	A	A	A	A	A	A	A
	13	12	10	9	12	11	12	13	14	13
10/04/22	12	14	13	13	13	12	12	14	14	13
	25	26	23	22	25	23	24	27	28	26
x# Young 24.9 C.V. 7.68% x%Survival 100% C.V. 0.00%										

where: A = Alive

5 = Alive, 5 young

D = Dead

D5 = 5 Young, Female died

ex 1:

A	alive today
4	total young to date

ex 2:

5	alive, 5 young today
12	total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34412

Test Date: September 27, 2022

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
09/27/22	Start	25.0	1	8.14	8.28	8.19	8.14	8.15	8.17	8.18	HB
09/28/22	24 Hr.	24.5	1	7.96	8.22	8.06	7.99	7.92	7.84	7.80	HB
09/28/22	Renew	25.0	1	8.45	8.05	7.96	7.90	7.85	7.79	7.71	HB
09/29/22	48 Hr.	24.5	1	8.28	8.23	7.98	7.91	7.76	7.80	7.61	JP
09/29/22	Renew	25.0	2	8.42	8.06	7.93	7.87	7.72	7.73	7.58	JP
09/30/22	72 Hr.	24.3	2	7.93	8.05	7.84	7.86	7.81	7.70	7.78	JP
09/30/22	Renew	25.0	2	8.04	7.96	7.81	7.79	7.77	7.62	7.70	JP
10/01/22	96 Hr.	23.5	2	8.39	8.22	7.91	7.84	7.79	7.76	7.76	JP
10/01/22	Renew	25.0	3	8.34	8.12	7.89	7.81	7.74	7.72	7.78	JP
10/02/22	120 Hr.	23.6	3	8.39	8.21	8.02	7.93	7.92	7.74	7.85	JP
10/02/22	Renew	25.0	3	8.37	8.12	7.90	7.86	7.85	7.70	7.76	JP
10/03/22	144 Hr.	23.3	3	8.15	8.33	8.20	8.11	8.09	8.04	7.93	HB
10/03/22	Renew	25.0	3	8.47	8.04	7.91	7.88	7.78	7.92	7.90	HB
10/04/22	168 Hr.	23.6	3	8.82	8.69	8.60	8.55	8.51	8.47	8.51	HB

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
09/27/22	Start	25.0	1	8.21	8.11	7.82	7.73	7.72	7.79	7.87	HB
09/28/22	24 Hr.	24.5	1	8.55	8.17	7.89	7.73	8.20	8.24	8.35	HB
09/28/22	Renew	25.0	1	7.99	8.51	7.73	7.66	7.65	7.73	7.66	HB
09/29/22	48 Hr.	24.5	1	8.17	7.73	8.54	7.95	7.67	7.82	7.95	JP
09/29/22	Renew	25.0	2	8.10	7.57	7.81	7.98	7.92	8.09	8.05	JP
09/30/22	72 Hr.	24.3	2	8.55	8.45	8.39	8.52	8.52	8.53	8.60	JP
09/30/22	Renew	25.0	2	8.09	8.58	8.61	8.30	8.60	8.65	7.81	JP
10/01/22	96 Hr.	23.5	2	7.91	8.58	8.51	8.57	8.65	8.56	8.30	JP
10/01/22	Renew	25.0	3	8.29	8.05	8.43	8.61	8.53	7.74	8.08	JP
10/02/22	120 Hr.	23.6	3	8.63	8.22	8.39	8.52	7.83	8.64	8.32	JP
10/02/22	Renew	25.0	3	8.58	7.67	7.68	8.29	7.75	8.54	8.48	JP
10/03/22	144 Hr.	23.3	3	7.99	8.02	7.98	8.07	8.04	8.08	7.90	HB
10/03/22	Renew	25.0	3	8.12	7.98	8.08	7.98	8.08	8.14	7.86	HB
10/04/22	168 Hr.	23.6	3	8.50	8.60	8.42	8.14	8.48	8.44	8.38	HB

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 34412

Test Date: September 27, 2022

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
09/27/22	1	8.18	7.87	72	90	842	<0.01	N/A	HB
09/29/22	2	7.32	8.14	68	96	869	<0.01	N/A	JP
10/01/22	3	7.54	8.07	72	96	838	<0.01	N/A	JP

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
09/27/22	RS1	8.28	8.11	48	62	236	<0.01	N/A	HB
09/29/22	RS2	8.06	7.57	52	64	238	<0.01	N/A	JP
10/01/22	RS3	8.12	8.05	48	64	238	<0.01	N/A	JP

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	20.000	28.000	24.500
2	28% Effluent	10	23.000	27.000	25.300
3	37% Effluent	10	20.000	28.000	24.000
4	50% Effluent	10	21.000	29.000	25.300
5	66% Effluent	10	21.000	27.000	23.900
6	88% Effluent	10	22.000	28.000	24.900

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	6.278	2.506	0.792	10.23
2	28% Effluent	2.456	1.567	0.496	6.19
3	37% Effluent	7.111	2.667	0.843	11.11
4	50% Effluent	6.678	2.584	0.817	10.21
5	66% Effluent	4.100	2.025	0.640	8.47
6	88% Effluent	3.656	1.912	0.605	7.68

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	> 0.5 to 1.5	> 1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	3	17	18	20	2

Calculated Chi-Square goodness of fit test statistic = 4.8217
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 3.53

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	19.150	3.830	0.759
Within (Error)	54	272.500	5.046	
Total	59	291.650		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	24.500	24.500		
2	28% Effluent	25.300	25.300	-0.796	
3	37% Effluent	24.000	24.000	0.498	
4	50% Effluent	25.300	25.300	-0.796	
5	66% Effluent	23.900	23.900	0.597	
6	88% Effluent	24.900	24.900	-0.398	

Dunnnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
 No statistically significant difference

Dunnnett's Test - Table 2 of 2 Ho:Control < Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	28% Effluent	10	2.321	9.5	-0.800
3	37% Effluent	10	2.321	9.5	0.500
4	50% Effluent	10	2.321	9.5	-0.800
5	66% Effluent	10	2.321	9.5	0.600
6	88% Effluent	10	2.321	9.5	-0.400

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Tyler-Westside

START DATE/TIME 9-27-22 MH 1530

OUTFALL 001

END DATE/TIME 10-22 TG 1530

LAB ID # 34412

PCON

TCON

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
9/28	A	A	A	A	A	A	A	A	A	A	TG	1530
9/29	A	A	A	A	A	A	A	A	A	A		
9/30	A	A	A	A	A	A	A	A	A	A	JC	1015
10/1	4	3	3	5	4	4	4	3	2	3		
10/2	7	11	9	10	8	11	8	7	6	10	MH	1330
10/3	A	A	A	A	A	A	A	A	A	A		
10/4	14	14	12	13	13	14	12	14	13	14	TG	1530
	25	28	24	28	25	29	24	24	21	27		

\bar{x} # Young w/o Dead = 25.5 CV% = 9.65

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
9/28	A	A	A	A	A	A	A	A	A	A	TG	1530
9/29	A	A	A	A	A	A	A	A	A	A		
9/30	A	A	A	A	A	A	A	A	A	A	JC	1015
10/1	5	5	4	5	2	4	2	2	2	3		
10/2	10	9	9	7	6	8	7	11	6	7	MH	1330
10/3	A	A	A	A	A	A	A	A	A	A		
10/4	13	13	13	12	12	12	14	14	14	14	TG	1530
	28	27	26	24	26	24	23	27	22	24		

\bar{x} # Young w/o Dead = 24.5 CV% = 10.23

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

28

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
9/28	A	A	A	A	A	A	A	A	A	A	TG	1530
9/29	A	A	A	A	A	A	A	A	A	A		
9/30	A	A	A	A	A	A	A	A	A	A	JC	1015
10/1	5	3	4	4	3	4	2	2	5	4		
10/2	9	8	8	10	11	7	11	10	6	11	MH	1330
10/3	A	A	A	A	A	A	A	A	A	A		
10/4	12	12	12	12	13	12	14	13	14	12	TG	1530
	26	23	24	26	27	28	27	25	25	27		

\bar{x} # Young w/o Dead = 25.3 CV% = 6.19

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
9/28	A	A	A	A	A	A	A	A	A	A	TG	1530
9/29	A	A	A	A	A	A	A	A	A	A		
9/30	A	A	A	A	A	A	A	A	A	A	JC	1015
10/1	3	3	2	5	2	4	3	2	2	5		
10/2	9	11	6	7	8	8	8	6	6	9	MH	1330
10/3	A	A	A	A	A	A	A	A	A	A		
10/4	13	13	13	14	12	13	13	12	14	14	TG	1530
	25	27	21	26	22	25	24	20	22	28		

\bar{x} # Young w/o Dead = 24.0 CV% = 11.11

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

APPENDIX B
REFERENCE TOXICANTS

CHRONIC REFERENCE TOXICANT TEST RESULTS

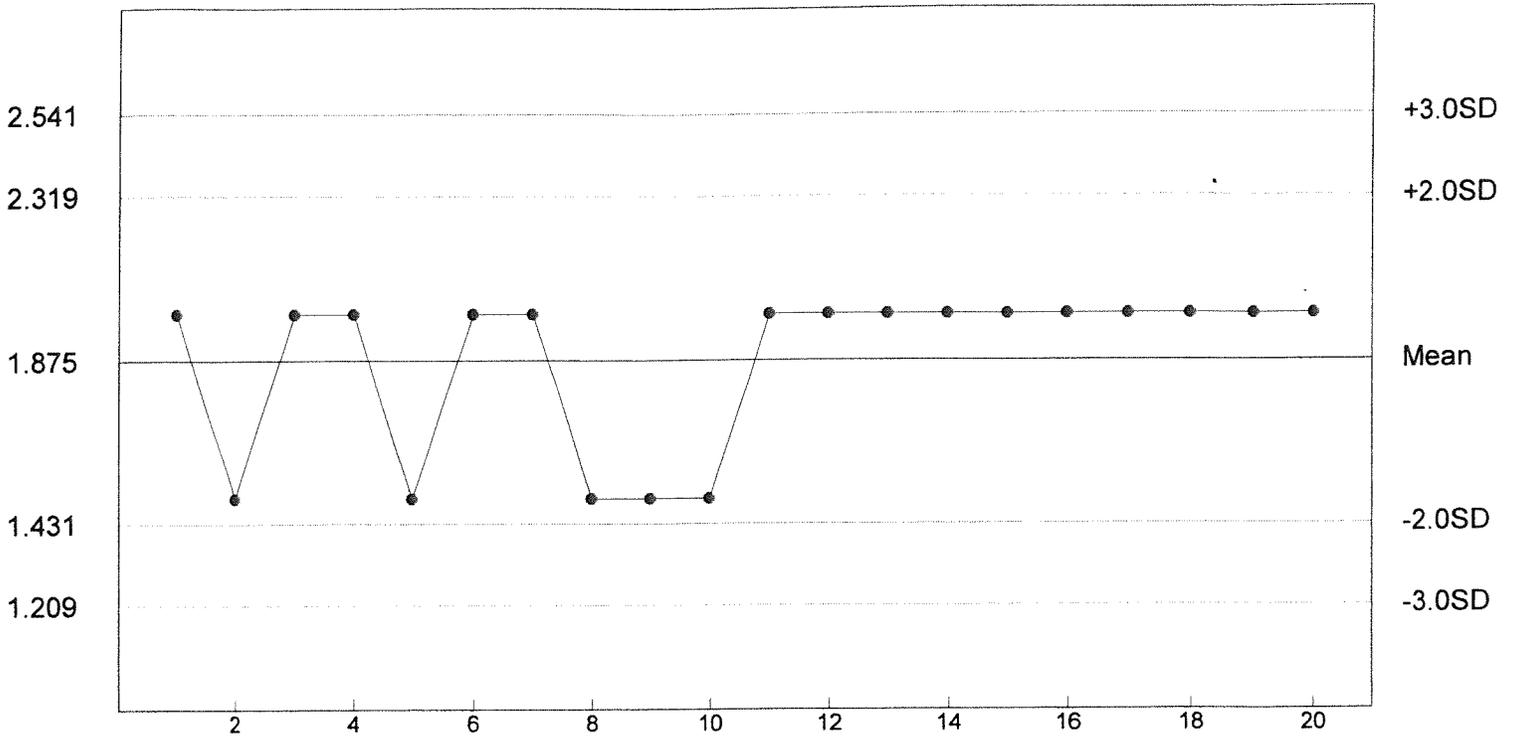
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 9
 TEST DATE: 09/07/22 - 09/14/22
 1445 Hrs - 1445 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	3
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.5 g/L	2.0 g/L	1.5 g/L	1.0 g/L

Reference Tox Sodium Chloride g/L

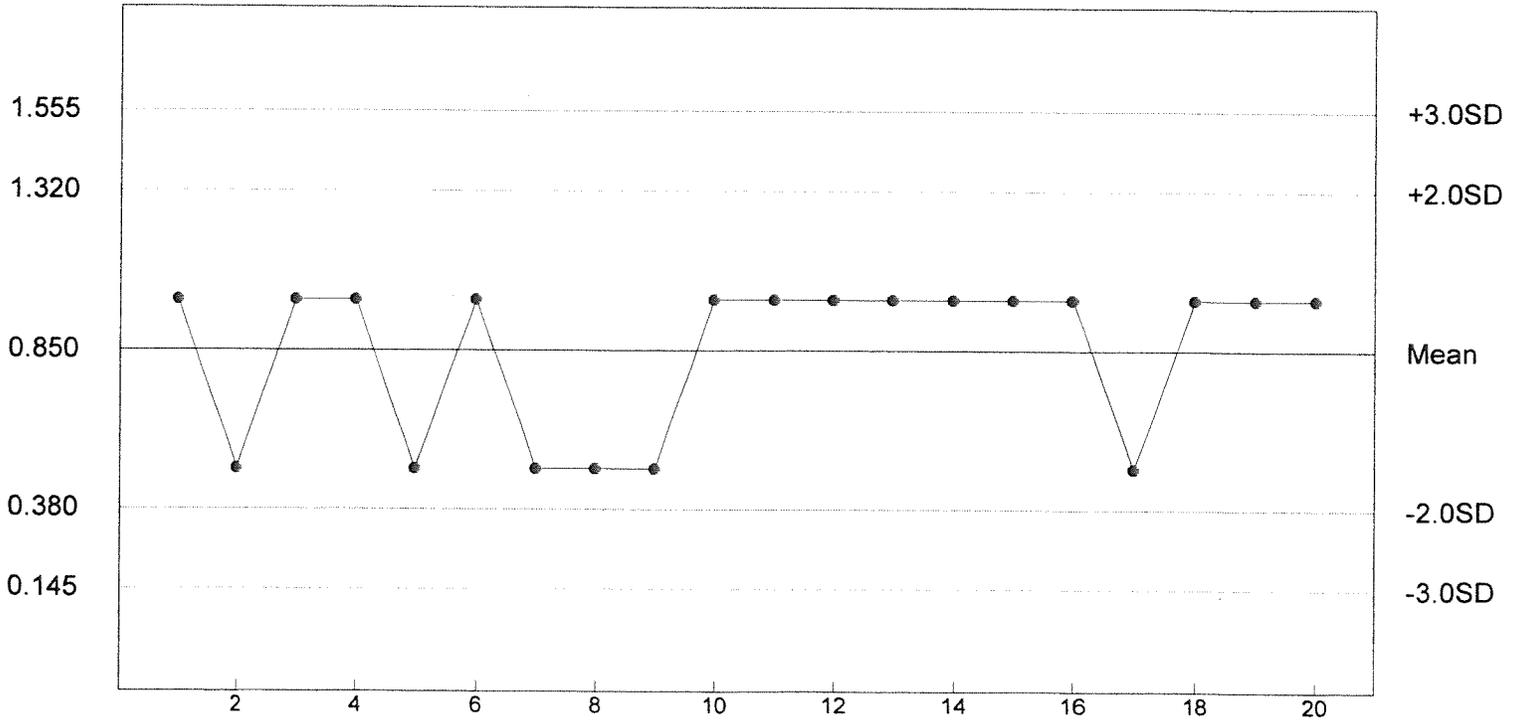
C. dubia Survival - NOEC



n= 20 Mean= 1.875 SD= 0.222 CV= 11.85% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.850 SD= 0.235 CV= 27.66% Min= 0.500 Max= 1.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34412 PROJECT NAME Tyler - Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
Westside	R.S.T.	9/24/22 10:00	9/24/22 8:00	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Westside R.S.	R.S.T.	9/24/22	8:00	1

TYPE OF TEST 7day 24hr Cerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 9/24/22 TIME: 0900 RECEIVED BY AT THIS DATE/TIME: [Signature] 9/26/22 0900
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 9/26/22 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.7 deg C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34412 PROJECT NAME Tyler - Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
West side West	P.P.T.	9/21/22 10:20	9/21/22 8:00	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
West side West R.S.	P.P.T.	9/20/22	8:00	1

TYPE OF TEST 7 day 24hr Cerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 9/20/22 TIME: 0915 RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: [Signature] DATE: 9/28/22 TIME: 1700 SAMPLE TEMP. @ RECEIPT. 0.8°C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34412 PROJECT NAME Tyler-Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
Westside W.W.T.P.	P.D.T.	9/29/22 10AM	9/30/22 8A	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Westside W.W.T.P.	P.D.T.	9/30/22	8A	1

TYPE OF TEST 7day 24hr Zer.10 P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 9/30/22 TIME: 0915 RECEIVED BY AT THIS DATE/TIME: [Signature]
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: [Signature] DATE: 9/30/22 TIME: 1700 SAMPLE TEMP. @ RECEIPT: 0.7 deg

TABLE 1 (SHEET 2 OF 2)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less ($p=0.05$) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 09/27/22
 FOR NET DMR**

I. <i>Ceriodaphnia dubia</i>	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	88%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	88%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
II. <i>Pimephales promelas</i>	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	
22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

- 9 = No retests required.
- Q = There were no lethal or sub-lethal effects; therefore the value is not quantifiable (Q).

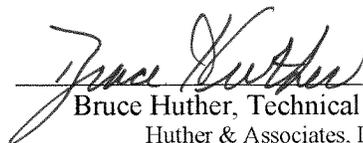
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

June 21, 2021

Reviewed by:



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client.....City of Tyler	Sample.....Outfall 001
Facility.....Westside WWTF	Laboratory I.D.....33767
Permit No.TPDES 10653-001	Begin DateJune 21, 2021

Results: **Pass** *Daphnia pulex* and *Pimephales promelas* survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was delivered by the client to Huther & Associates on June 20, 2021. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using *Daphnia pulex* and a static acute 24-hour toxicity screen test using *Pimephales promelas* (*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012*).

The effluent sample was analyzed for residual chlorine (Standard Methods, 23rd Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour *D. pulex* toxicity test was initiated at 1500 hours, June 21, 2021. The 24-hour *P. promelas* toxicity test was initiated at 1600 hours, June 21, 2021. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The *D. pulex* test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The *P. promelas* test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The *D. pulex* test was initiated with less than 24-hour-old organisms while the *P. promelas* test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The *D. pulex* test ended at 1500 hours, June 22, 2021. The *P. promelas* test ended at 1600 hours, June 22, 2021. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	06/20/22
LAB ID #	33767	DATE RECEIVED	06/20/22
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	06/21/22 1500
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	06/22/22 1500
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	T. Geiger

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
06/21/22	Start	1	8.06	7.72	7.55	7.08	AE
06/22/22	24 Hr.	1	8.29	8.11	8.19	7.02	AE

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	1	7.72	7.08	96	112	1002	<0.01	N/A	AE
06/21/22	Control	8.06	8.29	92	74	479	-	N/A	AE

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	06/20/22
LAB ID #	33767	DATE RECEIVED	06/20/22
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	06/21/22 1600
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	06/22/22 1600
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	R. Stogner

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
06/21/22	Start	1	8.06	7.72	7.55	7.08	AE
06/22/22	24 Hr.	1	8.33	7.94	8.52	6.89	AE

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/l, CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/21/22	1	7.72	7.08	96	112	1002	<0.01	N/A	AE
06/21/22	Control	8.06	8.29	92	74	479	-	N/A	AE

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler-Westside

PROJECT NUMBER: 33767

NUMBER ORGANISMS,
0 HRS

NUMBER ORGANISMS,
24 HRS

CONC.	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	6-21-22 1500					6-22-22 1500				
TECHNICIAN	TG					TG				

24-HOUR *PIMEPHALES PROMELAS* SURVIVAL

CLIENT: Tyler Westside

PROJECT #: 33767

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
CON	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	6/21/22 1600					6/22/22 1600				
TECHNICIAN	RS					RS				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*
 CHEMICAL: Sodium Chloride
 DURATION: 48-Hours
 TEST NUMBER: 6
 TEST DATE: 06/01/22 - 06/03/22
 1600 - 1600
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	0
2.0	20	0
2.5	20	2
3.0	20	20
4.0	20	20
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.68 g/L	2.61 g/L	2.76 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

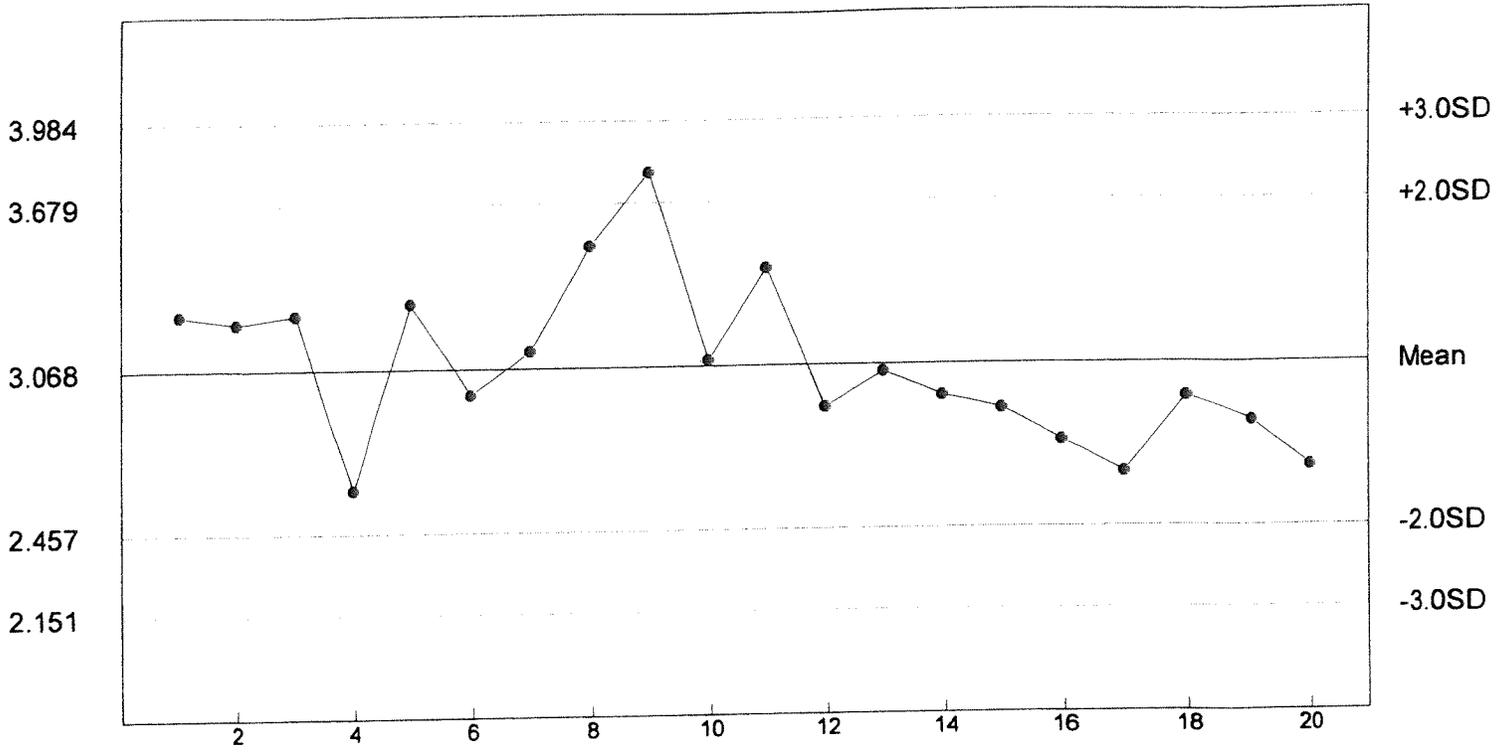
SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 48-Hours
 TEST NUMBER: 6
 TEST DATE: 06/01/22 -06/03/22
 1600 Hrs - 1600 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	0
200	40	4
400	40	30
800	40	40

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
313.83 ug/L	279.61 mg/L	352.25 mg/L

Ref. Toxicant Sodium chloride g/L

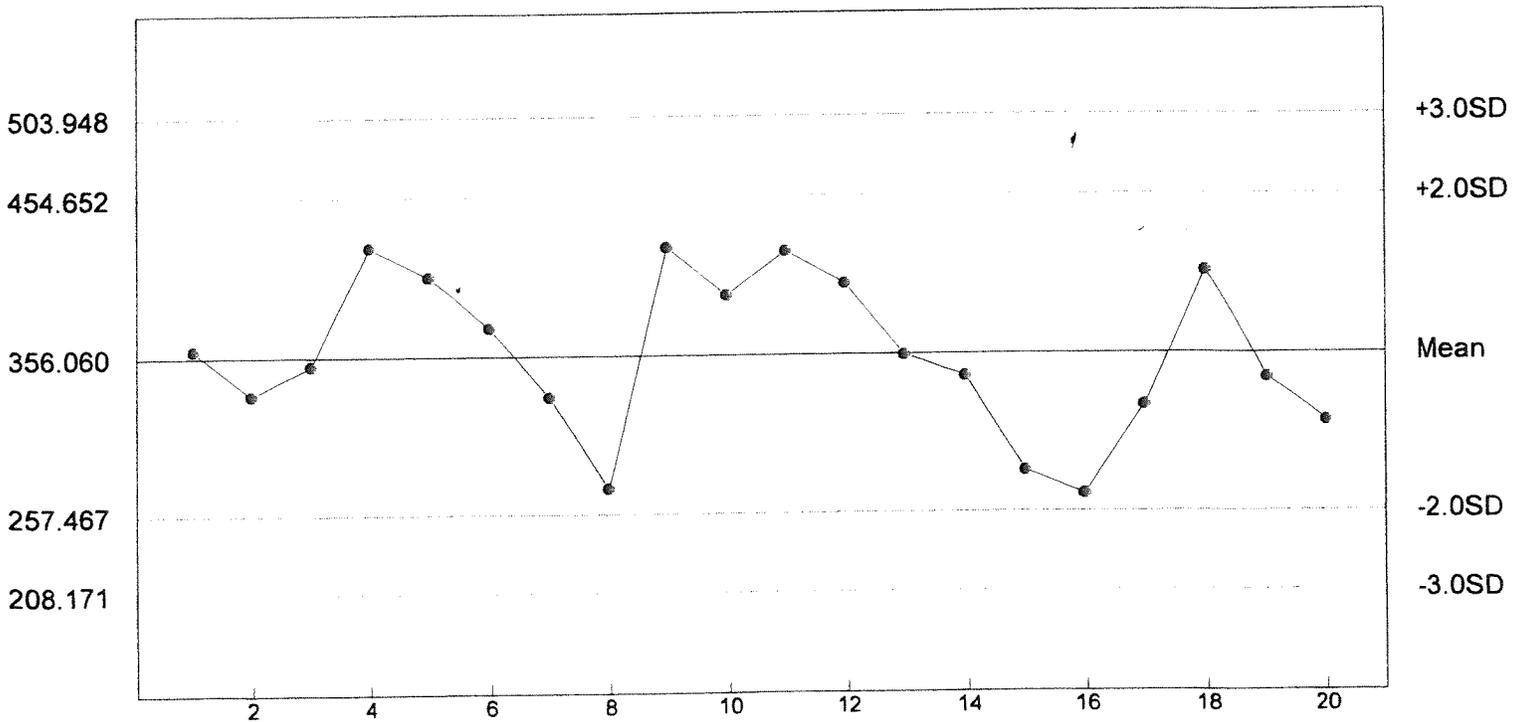
Daphnia pulex LC50



n= 20 Mean= 3.068 SD= 0.305 CV= 9.96% Min= 2.620 Max= 3.790

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 356.060 SD= 49.296 CV= 13.84% Min= 268.510 Max= 423.730

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33767 PROJECT NAME Tyler - Westside PERMIT# TADES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP EFF.	W.S. Personal	6/4/12 10am	6/4/12 3pm	12		*		1

RECEIVING WATER SAMPLES

TYPE OF TEST 7day 24hr C/P
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP EFF.	W.S. Personal	6/4/12	10am	12

RELINQUISHED BY: E. Stevan DATE: 6/20/12 TIME: 6:00am RECEIVED BY AT THIS DATE/TIME: [Signature]
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered X Other _____
 RECEIVED: [Signature] DATE: 6/20/12 TIME: 1030 SAMPLE TEMP. @ RECEIPT: 1.1 FBI

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)

DAPHNIA PULEX SURVIVAL

Dates and Times Composite Collected Date Time Date Time
 FROM: 06/19/22 1000 TO: 06/20/22 0800

Test Initiated: 1500 06/21/22 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times
 Composite Collected

	Date	Time		Date	Time
FROM:	<u>06/19/22</u>	<u>1000</u>	TO:	<u>06/20/22</u>	<u>0800</u>

Test Initiated: 1600 06/21/22 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

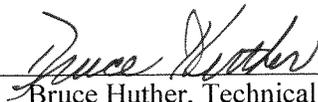
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

March 16, 2021

Reviewed by:



Bruce Huther, Technical Director

Huther & Associates, Inc.

1156 North Bonnie Brae

Denton, Texas 76201

(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client City of Tyler Sample Outfall 001
Facility Westside WWTF Laboratory I.D. 32522
Permit No. TPDES 10653-001 Begin Date March 16, 2021

Results: Pass Ceriodaphnia dubia survival and reproduction and Pimephales promelas survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up by Huthur & Associates on March 15, March 17, and March 19, 2021. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. Two toxicity tests were requested: a seven-day Ceriodaphnia dubia survival and reproduction test (EPA Method 1002.0), and a seven-day Pimephales promelas larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP Ceriodaphnia dubia



The seven-day Ceriodaphnia dubia survival and reproduction test was initiated at 1345 hours, March 16, 2021. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). C. dubia neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL Selenastrum capricornutum and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	03/15/21 03/17/21 03/19/21
LAB ID #	32522	DATE RECEIVED	03/15/21 03/17/21 03/19/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	03/16/21 1345
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	03/23/21 1345
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndI
DILUTION WATER	Black Fork Creek	TECHNICIAN	T. Geiger

SURVIVAL & REPRODUCTION SUMMARY

Performance Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	3	5	5	3	2	2	4	3	3	2
	3	5	5	3	2	2	4	3	3	2
03/21/21	A	A	A	A	A	A	A	A	A	A
	3	5	5	3	2	2	4	3	3	2
03/22/21	9	11	6	8	9	9	8	10	7	8
	12	16	11	11	11	11	12	13	10	10
03/23/21	14	13	12	13	14	13	12	13	14	13
	26	29	23	24	25	24	24	26	24	23
x# Young 24.8 C.V. 7.31% x%Survival 100% C.V. 0.00%										

True Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	2	3	2	4	5	4	3	2	3	3
	2	3	2	4	5	4	3	2	3	3
03/21/21	A	A	A	A	A	A	A	A	A	A
	2	3	2	4	5	4	3	2	3	3
03/22/21	8	7	11	10	9	7	8	11	9	6
	10	10	13	14	14	11	11	13	12	9
03/23/21	12	13	14	13	12	12	14	13	12	13
	22	23	27	27	26	23	25	26	24	22
x# Young 24.5 C.V. 7.99% x%Survival 100% C.V. 0.00%										

28%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	3	2	5	3	5	2	4	4	2	3
	3	2	5	3	5	2	4	4	2	3
03/21/21	A	A	A	A	A	A	A	A	A	A
	3	2	5	3	5	2	4	4	2	3
03/22/21	7	6	9	8	7	9	9	11	6	10
	10	8	14	11	12	11	13	15	8	13
03/23/21	13	13	12	13	14	13	12	13	12	13
	23	21	26	24	26	24	25	28	20	26
x# Young 24.3 C.V. 10.09% x%Survival 100% C.V. 0.00%										

37%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	2	2	5	3	3	2	3	4	3	2
	2	2	5	3	3	2	3	4	3	2
03/21/21	A	A	A	A	A	A	A	A	A	A
	2	2	5	3	3	2	3	4	3	2
03/22/21	11	10	8	7	9	8	10	6	6	7
	13	12	13	10	12	10	13	10	9	9
03/23/21	13	13	13	12	14	13	13	14	13	14
	26	25	26	22	26	23	26	24	22	23
x# Young 24.3 C.V. 7.01% x%Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A
4

 alive today
 total young to date

ex 2:

5
12

 alive, 5 young today
 total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32522

Test Date: March 16, 2021

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	3	5	4	4	3	2	5	3	2	2
	3	5	4	4	3	2	5	3	2	2
03/21/21	A	A	A	A	A	A	A	A	A	A
	3	5	4	4	3	2	5	3	2	2
03/22/21	10	8	9	7	6	7	10	9	9	11
	13	13	13	11	9	9	15	12	11	13
03/23/21	14	12	13	14	12	13	13	14	12	12
	27	25	26	25	21	22	28	26	23	25
<p style="text-align: center;">x # Young 24.8 C.V. 8.88%</p> <p style="text-align: center;">x%Survival 100% C.V. 0.00%</p>										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	4	3	3	5	2	5	3	3	4	3
	4	3	3	5	2	5	3	3	4	3
03/21/21	A	A	A	A	A	A	A	A	A	A
	4	3	3	5	2	5	3	3	4	3
03/22/21	7	7	6	10	9	8	11	6	8	7
	11	10	9	15	11	13	14	9	12	10
03/23/21	13	14	13	12	14	12	13	12	13	14
	24	24	22	27	25	25	27	21	25	24
<p style="text-align: center;">x # Young 24.4 C.V. 7.78%</p> <p style="text-align: center;">x%Survival 100% C.V. 0.00%</p>										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/18/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/19/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/20/21	3	4	3	2	5	3	2	4	3	3
	3	4	3	2	5	3	2	4	3	3
03/21/21	A	A	A	A	A	A	A	A	A	A
	3	4	3	2	5	3	2	4	3	3
03/22/21	8	10	9	6	7	11	8	7	10	8
	11	14	12	8	12	14	10	11	13	11
03/23/21	13	12	12	13	14	13	12	13	14	12
	24	26	24	21	26	27	22	24	27	23
<p style="text-align: center;">x # Young 24.4 C.V. 8.47%</p> <p style="text-align: center;">x%Survival 100% C.V. 0.00%</p>										

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32522

Test Date: March 16, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
03/16/21	Start	25.0	1	8.28	7.58	7.47	7.46	7.38	7.40	7.37	TN
03/17/21	24 Hr.	24.6	1	7.79	7.64	7.41	7.40	7.38	7.41	7.42	LM
03/17/21	Renew	24.5	1	8.03	7.49	7.20	7.24	7.12	7.05	7.11	LM
03/18/21	48 Hr.	24.0	1	8.32	7.93	7.64	7.57	7.57	7.56	7.56	AN
03/18/21	Renew	25.0	2	8.02	7.10	7.03	7.04	7.04	7.02	7.01	TN
03/19/21	72 Hr.	24.0	2	7.94	7.47	7.47	7.51	7.52	7.55	7.55	TN
03/19/21	Renew	24.0	2	8.02	7.36	7.18	7.15	7.23	7.03	7.02	AN
03/20/21	96 Hr.	23.4	2	8.17	7.73	7.52	7.56	7.59	7.56	7.62	LM
03/20/21	Renew	25.0	3	7.99	7.87	7.62	7.63	7.81	7.76	7.65	LM
03/21/21	120 Hr.	24.0	3	8.11	7.59	7.39	7.56	7.57	7.52	7.63	LM
03/21/21	Renew	23.9	3	7.80	7.60	7.60	7.30	7.51	7.63	7.49	LM
03/22/21	144 Hr.	24.4	3	7.91	7.46	7.24	7.29	7.29	7.24	7.22	AN
03/22/21	Renew	24.0	3	7.92	7.86	7.30	7.31	7.31	7.18	7.12	AN
03/23/21	168 Hr.	24.2	3	8.08	7.71	7.61	7.69	7.64	7.62	7.62	TN

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
03/16/21	Start	25.0	1	7.87	8.28	8.27	8.65	8.36	8.28	7.72	TN
03/17/21	24 Hr.	24.6	1	7.67	7.33	7.42	7.75	7.92	7.69	7.32	LM
03/17/21	Renew	24.5	1	7.96	8.07	7.88	8.00	8.03	7.63	8.28	LM
03/18/21	48 Hr.	24.0	1	8.09	8.04	7.85	7.91	7.92	7.78	7.96	AN
03/18/21	Renew	25.0	2	7.88	8.46	7.88	7.86	7.85	7.76	8.65	TN
03/19/21	72 Hr.	24.0	2	8.10	7.61	8.52	8.63	7.89	7.94	8.08	TN
03/19/21	Renew	24.0	2	7.87	7.95	8.01	7.35	7.28	8.63	8.05	AN
03/20/21	96 Hr.	23.4	2	7.87	7.09	8.56	7.99	8.09	8.14	8.05	LM
03/20/21	Renew	25.0	3	8.04	7.67	7.99	8.35	8.48	8.54	8.50	LM
03/21/21	120 Hr.	24.0	3	7.96	7.45	8.63	7.36	7.59	7.79	8.07	LM
03/21/21	Renew	23.9	3	8.14	8.18	7.21	8.16	8.60	8.06	8.58	LM
03/22/21	144 Hr.	24.4	3	7.42	7.71	7.32	8.36	8.55	8.42	7.31	AN
03/22/21	Renew	24.0	3	7.59	8.13	7.86	7.86	7.69	7.83	7.96	AN
03/23/21	168 Hr.	24.2	3	8.51	7.45	7.40	8.23	7.69	7.10	7.59	TN

Huthner and Associates
 7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32522

Test Date: March 16, 2021

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	1	7.07	8.64	92	60	807	<0.01	N/A	TN
03/18/21	2	7.95	7.70	76	74	856	<0.01	N/A	TN
03/20/21	3	7.92	8.21	112	70	780	<0.01	N/A	TN

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	RS1	7.58	8.28	84	50	253	<0.01	N/A	TN
03/18/21	RS2	7.10	8.46	68	42	309	<0.01	N/A	TN
03/20/21	RS3	7.87	7.67	68	46	306	<0.01	N/A	TN

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	22.000	27.000	24.500
2	28% Effluent	10	20.000	28.000	24.300
3	37% Effluent	10	22.000	26.000	24.300
4	50% Effluent	10	21.000	28.000	24.800
5	66% Effluent	10	21.000	27.000	24.400
6	88% Effluent	10	21.000	27.000	24.400

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	3.833	1.958	0.619	7.99
2	28% Effluent	6.011	2.452	0.775	10.09
3	37% Effluent	2.900	1.703	0.539	7.01
4	50% Effluent	4.844	2.201	0.696	8.88
5	66% Effluent	3.600	1.897	0.600	7.78
6	88% Effluent	4.267	2.066	0.653	8.47

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	4	15	19	21	1

Calculated Chi-Square goodness of fit test statistic = 5.8471
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 1.38

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	1.750	0.350	0.082
Within (Error)	54	229.100	4.243	
Total	59	230.850		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	24.500	24.500		
2	28% Effluent	24.300	24.300	0.217	
3	37% Effluent	24.300	24.300	0.217	
4	50% Effluent	24.800	24.800	-0.326	
5	66% Effluent	24.400	24.400	0.109	
6	88% Effluent	24.400	24.400	0.109	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
 No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	28% Effluent	10	2.128	8.7	0.200
3	37% Effluent	10	2.128	8.7	0.200
4	50% Effluent	10	2.128	8.7	-0.300
5	66% Effluent	10	2.128	8.7	0.100
6	88% Effluent	10	2.128	8.7	0.100

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	03/15/21 03/17/21 03/19/21
LAB ID #	32522	DATE RECEIVED	03/15/21 03/17/21 03/19/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	03/16/21 1400
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/23/21 1400
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	03/17/21					03/18/21					03/19/21					03/20/21					03/21/21				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	03/22/21					03/23/21					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4580	0.4290	0.4860	0.4790	0.4530	0.4610	4.91
TCON	0.4520	0.4670	0.4230	0.4450	0.4260	0.4426	4.15
28%	0.4690	0.4820	0.4440	0.4700	0.4290	0.4588	4.72
37%	0.4750	0.4640	0.4290	0.4830	0.4750	0.4652	4.59
50%	0.4560	0.4490	0.4820	0.4290	0.4640	0.4560	4.27
66%	0.4890	0.4170	0.4650	0.4770	0.4810	0.4658	6.14
88%	0.4210	0.4640	0.4870	0.4820	0.4560	0.4620	5.67

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32522

Test Date: March 16, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
03/16/21	Start	25.0	1	8.28	7.58	7.47	7.46	7.38	7.40	7.37	TN
03/17/21	24 Hr.	24.6	1	7.60	7.18	7.04	7.08	7.12	7.16	7.26	LM
03/17/21	Renew	24.5	1	8.03	7.49	7.20	7.24	7.12	7.05	7.11	LM
03/18/21	48 Hr.	22.6	1	7.26	7.88	7.94	7.97	7.00	7.03	7.01	TN
03/18/21	Renew	25.0	2	8.02	7.10	7.03	7.04	7.04	7.02	7.01	TN
03/19/21	72 Hr.	24.0	2	7.38	7.26	7.32	7.37	7.38	7.32	7.32	AN
03/19/21	Renew	24.0	2	8.02	7.36	7.18	7.15	7.23	7.03	7.02	AN
03/20/21	96 Hr.	23.3	2	7.61	7.19	7.28	7.30	7.25	7.30	7.32	TN
03/20/21	Renew	25.0	3	7.99	7.87	7.62	7.63	7.81	7.76	7.65	LM
03/21/21	120 Hr.	23.9	3	7.60	7.29	7.27	7.35	7.33	7.33	7.32	LM
03/21/21	Renew	23.9	3	7.80	7.60	7.60	7.30	7.51	7.63	7.49	LM
03/22/21	144 Hr.	24.0	3	7.29	7.23	7.25	7.25	7.30	7.25	7.31	AN
03/22/21	Renew	24.0	3	7.92	7.86	7.30	7.31	7.31	7.18	7.12	AN
03/23/21	168 Hr.	24.2	3	7.48	7.16	7.19	7.28	7.26	7.29	7.31	TN

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
03/16/21	Start	25.0	1	7.87	8.28	8.27	8.65	8.36	8.28	7.72	TN
03/17/21	24 Hr.	24.6	1	7.89	8.21	7.29	7.34	7.69	7.66	8.48	LM
03/17/21	Renew	24.5	1	7.96	8.07	7.88	8.00	8.03	7.63	8.28	LM
03/18/21	48 Hr.	22.6	1	8.52	7.91	7.91	8.47	7.73	7.37	8.58	TN
03/18/21	Renew	25.0	2	7.88	8.46	7.88	7.86	7.85	7.76	8.65	TN
03/19/21	72 Hr.	24.0	2	7.70	8.56	8.57	7.92	8.58	8.10	8.11	AN
03/19/21	Renew	24.0	2	7.87	7.95	8.01	7.35	7.28	8.63	8.05	AN
03/20/21	96 Hr.	23.3	2	7.72	7.94	7.61	8.10	7.17	7.64	8.01	TN
03/20/21	Renew	25.0	3	8.04	7.67	7.99	8.35	8.48	8.54	8.50	LM
03/21/21	120 Hr.	23.9	3	8.51	7.24	8.12	8.64	7.90	8.31	8.34	LM
03/21/21	Renew	23.9	3	8.14	8.18	7.21	8.16	8.60	8.06	8.58	LM
03/22/21	144 Hr.	24.0	3	7.30	7.66	8.36	7.88	8.40	8.42	7.37	AN
03/22/21	Renew	24.0	3	7.59	8.13	7.86	7.86	7.69	7.83	7.96	AN
03/23/21	168 Hr.	24.2	3	8.24	8.04	8.11	8.16	7.42	8.40	7.22	TN

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32522

Test Date: March 16, 2021

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	1	7.07	8.64	92	60	807	<0.01	N/A	TN
03/18/21	2	7.95	7.70	76	74	856	<0.01	N/A	TN
03/20/21	3	7.92	8.21	112	70	780	<0.01	N/A	TN

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	RS1	7.58	8.28	84	50	253	<0.01	N/A	TN
03/18/21	RS2	7.10	8.46	68	42	309	<0.01	N/A	TN
03/20/21	RS3	7.87	7.67	68	46	306	<0.01	N/A	TN

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.423	0.467	0.443
2	28% Effluent	5	0.429	0.482	0.459
3	37% Effluent	5	0.429	0.483	0.465
4	50% Effluent	5	0.429	0.482	0.456
5	66% Effluent	5	0.417	0.489	0.466
6	88% Effluent	5	0.421	0.487	0.462

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.000	0.018	0.008	4.15
2	28% Effluent	0.000	0.022	0.010	4.72
3	37% Effluent	0.000	0.021	0.010	4.59
4	50% Effluent	0.000	0.019	0.009	4.27
5	66% Effluent	0.001	0.029	0.013	6.14
6	88% Effluent	0.001	0.026	0.012	5.67

Shapiro - Wilk's Test For Normality

D = 0.013

W = 0.916

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data **Pass** normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 1.10

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.002	0.000	0.705
Within (Error)	24	0.013	0.001	
Total	29	0.014		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Transformed	Mean	T Stat	Sig
		Mean	Calculated In Original Units		
1	Control	0.443	0.443		
2	28% Effluent	0.459	0.459	-1.119	
3	37% Effluent	0.465	0.465	-1.560	
4	50% Effluent	0.456	0.456	-0.925	
5	66% Effluent	0.466	0.466	-1.602	
6	88% Effluent	0.462	0.462	-1.339	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	5			
2	28% Effluent	5	0.034	7.7	-0.016
3	37% Effluent	5	0.034	7.7	-0.023
4	50% Effluent	5	0.034	7.7	-0.013
5	66% Effluent	5	0.034	7.7	-0.023
6	88% Effluent	5	0.034	7.7	-0.019

**APPENDIX A
RAW DATA**

**7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY: Tyler Westside DATE/TIME STARTED: 3-16-21 JC 1400
 OUTFALL #: 001 PROJECT #: 32522 DATE/TIME ENDED: 3-23-21 JC 1400
 ORGANISM ID#: PF0-21-074

Conc.	3-17-21 JC 1400					3-18-21 JC 1035					3-19-21 JC 1115					3-20-21 MH 0935					3-21-21 MH 0810									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
PCan	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCan	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Initials Date/Time						SJA 3-18-21 JC 1035					3-19-21 JC 1115					3-20-21 MH 0935					3-21-21 MH 0810									

Conc.	3-22-21 JC 1205					3-23-21 JC 1400					C.V. %	
	A	B	C	D	E	A	B	C	D	E		
PCan	8	8	8	8	8	8	8	8	8	8	100.0	0.00
1can	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88	8	8	8	8	8	8	8	8	8	8	100.0	0.00
Initials Date/Time	3-22-21 JC 1205					3-23-21 JC 1400						

03-18-21 JC

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Tyler-Westside

OUTFALL 001

LAB ID # 32522

START DATE/TIME 3-16-21 TG 1345

END DATE/TIME 3-23-21 TG 1345

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	3	5	5	3	2	2	4	3	3	2	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	9	11	6	8	9	9	8	10	7	8	DM	1630
3/23	14	13	12	13	14	13	12	13	14	13	TG	1345
	26	29	23	24	25	24	24	26	24	23		

\bar{x} # Young w/o Dead = 24.8 CV% = 7.31

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	2	3	2	4	5	4	3	2	3	3	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	8	7	11	10	9	7	8	11	9	6	DM	1630
3/23	12	13	14	13	12	12	14	13	12	13	TG	1345
	22	23	27	27	26	23	25	26	24	22		

\bar{x} # Young w/o Dead = 24.5 CV% = 7.99

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	3	2	5	3	5	2	4	4	2	3	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	7	6	9	8	7	9	9	11	6	10	DM	1630
3/23	13	13	12	13	14	13	12	13	12	13	TG	1345
	23	21	26	24	26	24	25	28	20	26		

\bar{x} # Young w/o Dead = 24.3 CV% = 10.09

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	2	2	5	3	3	2	3	4	3	2	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	11	10	8	7	9	8	10	6	6	7	DM	1630
3/23	13	13	13	12	14	13	13	14	13	14	TG	1345
	26	25	26	22	26	23	26	24	22	23		

\bar{x} # Young w/o Dead = 24.3 CV% = 7.01

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 2 OF 2

CLIENT Tyler-Westside
 OUTFALL 001
 LAB ID # 32522

START DATE/TIME 3-16-21 TG 1345
 END DATE/TIME 3-23-21 TG 1345

50

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	3	5	4	4	3	2	5	3	2	2	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	10	8	9	7	6	7	10	9	9	11	DM	1630
3/23	14	12	13	14	12	13	13	14	12	12	TG	1345
	27	25	26	25	21	22	28	26	23	25		

\bar{x} # Young w/o Dead = 24.8 CV% = 8.88

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

66

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	4	3	3	5	2	5	3	3	4	3	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	7	7	6	10	9	8	11	6	8	7	DM	1630
3/23	13	14	13	12	14	12	13	12	13	14	TG	1345
	24	24	22	27	25	25	27	21	25	24		

\bar{x} # Young w/o Dead = 24.4 CV% = 7.78

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

88

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/17	A	A	A	A	A	A	A	A	A	A	TG	1345
3/18	A	A	A	A	A	A	A	A	A	A	TG	1445
03/19	A	A	A	A	A	A	A	A	A	A	DM	1530
3/20	3	4	3	2	5	3	2	4	3	3	TG	1345
3/21	A	A	A	A	A	A	A	A	A	A	TG	1345
03/22	8	10	9	6	7	11	8	7	10	8	DM	1630
3/23	13	12	12	13	14	13	12	13	14	12	TG	1345
	24	24	24	21	26	27	22	24	27	23		

\bar{x} # Young w/o Dead = 24.4 CV% = 8.47

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time

\bar{x} # Young w/o Dead = CV% =

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = CV% =

Client / Facility Tyler Westside
 Lab ID Number 32522
 Outfall Number 001
 Test Date 3-16-21

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ †	Alkalinity mg/L CaCO ₃ †	Conduct. umhos/cm †	Resid. Cl ₂ mg/L †	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L †	Analyst
3-16-21	1	7.07	8.64	92	60	807	20.01	N/A	TN
3-18-21	2	7.95	7.70	76	74	856	20.01	N/A	TN
3-20-21	3	7.92	8.21	112	70	780	20.01	N/A	TN

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ †	Alkalinity mg/L CaCO ₃ †	Conduct. umhos/cm †	Resid. Cl ₂ mg/L †	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L †	Analyst
3-16-21	RS 1	7.58	8.28	84	50	253	20.01	N/A	TN
3-18-21	RS 2	7.10	8.46	68	42	309	20.01	N/A	TN
3-20-21	RS 3	7.87	7.67	68	46	306	20.01	N/A	TN

Notes:

APPENDIX B
REFERENCE TOXICANTS

CHRONIC REFERENCE TOXICANT TEST RESULTS

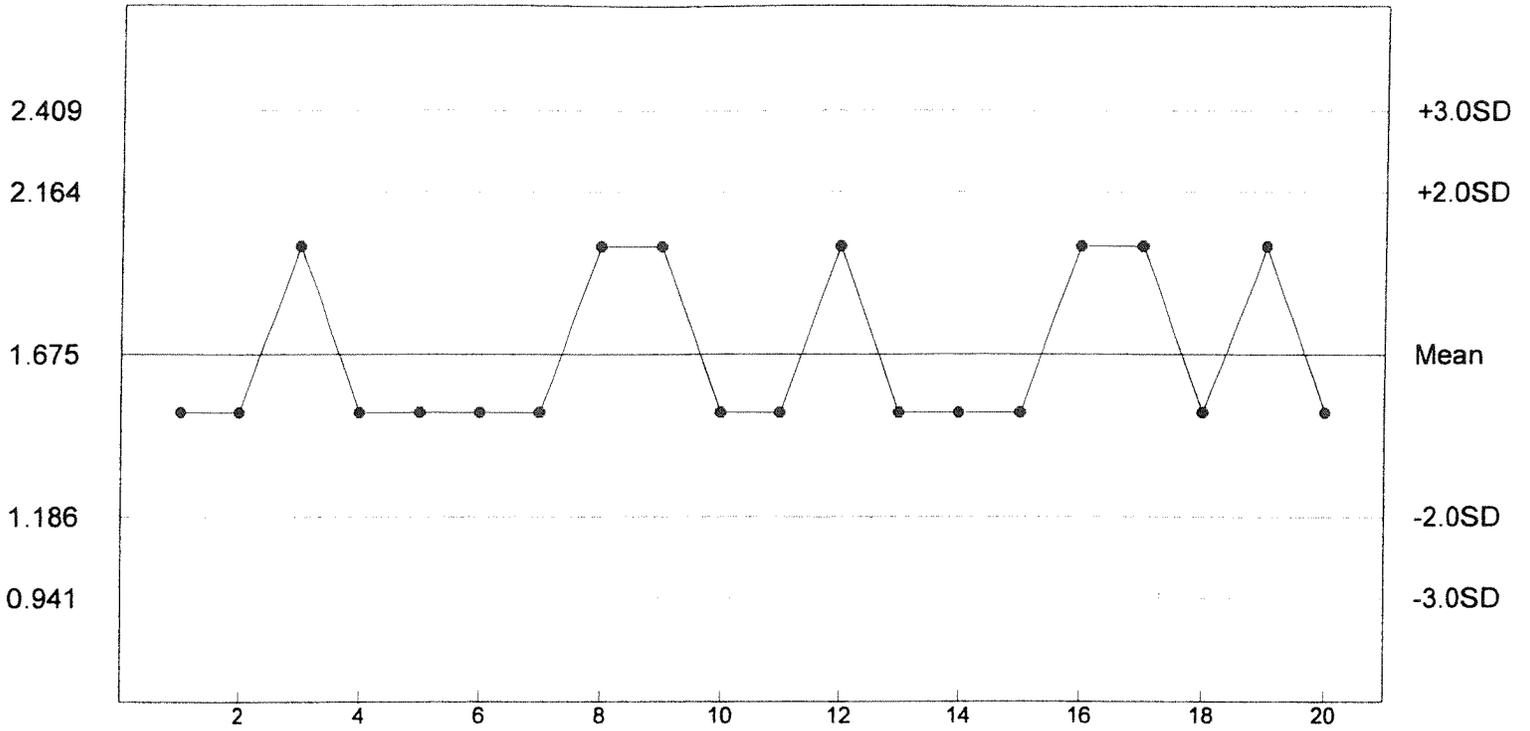
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 3
 TEST DATE: 03/03/21 - 03/10/21
 1600 Hrs - 1600 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	1
2.0	10	7
2.5	10	9
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.0 g/L	0.5 g/L

Reference Tox Sodium Chloride g/L

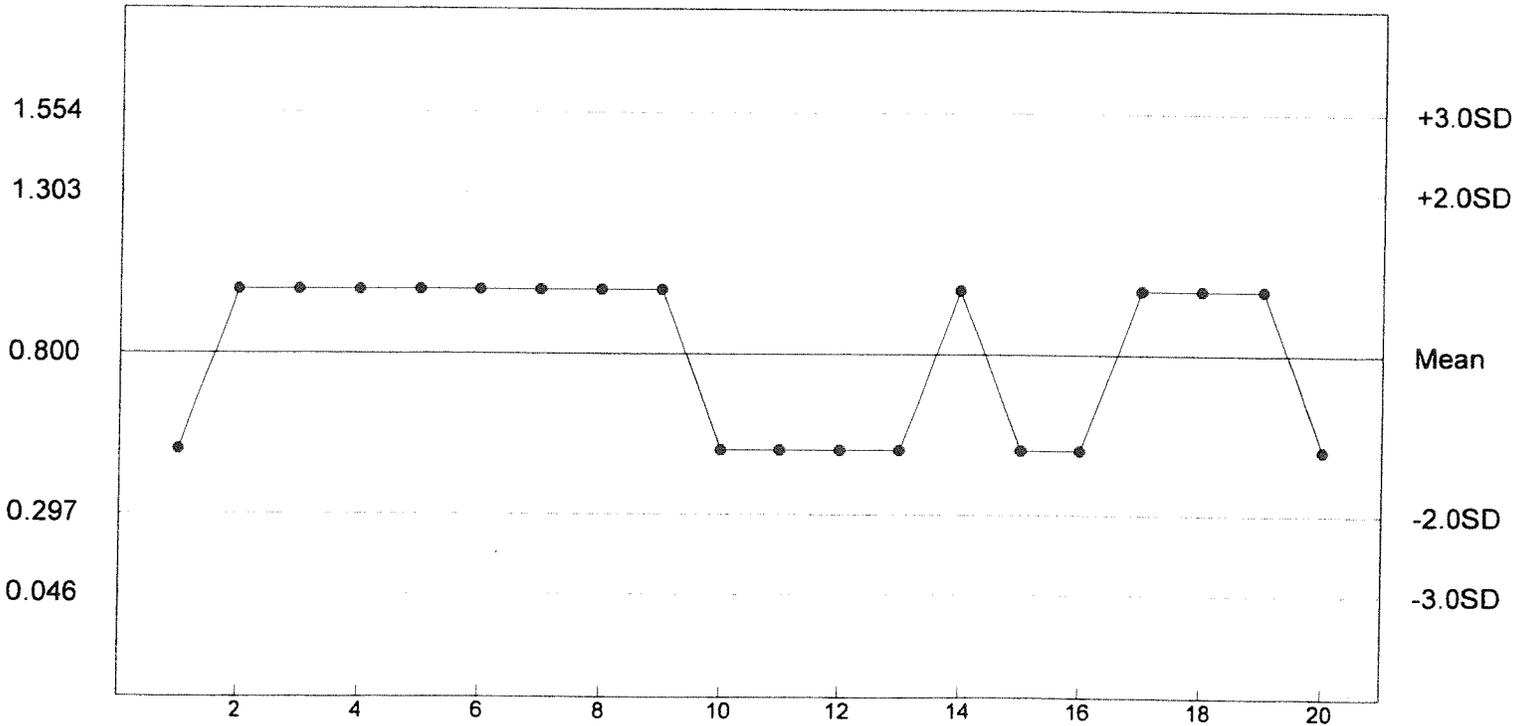
C. dubia Survival - NOEC



n= 20 Mean= 1.675 SD= 0.245 CV= 14.61% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.800 SD= 0.251 CV= 31.41% Min= 0.500 Max= 1.000

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*

CHEMICAL: Copper Nitrate

DURATION: 7-Days

TEST NUMBER: 3

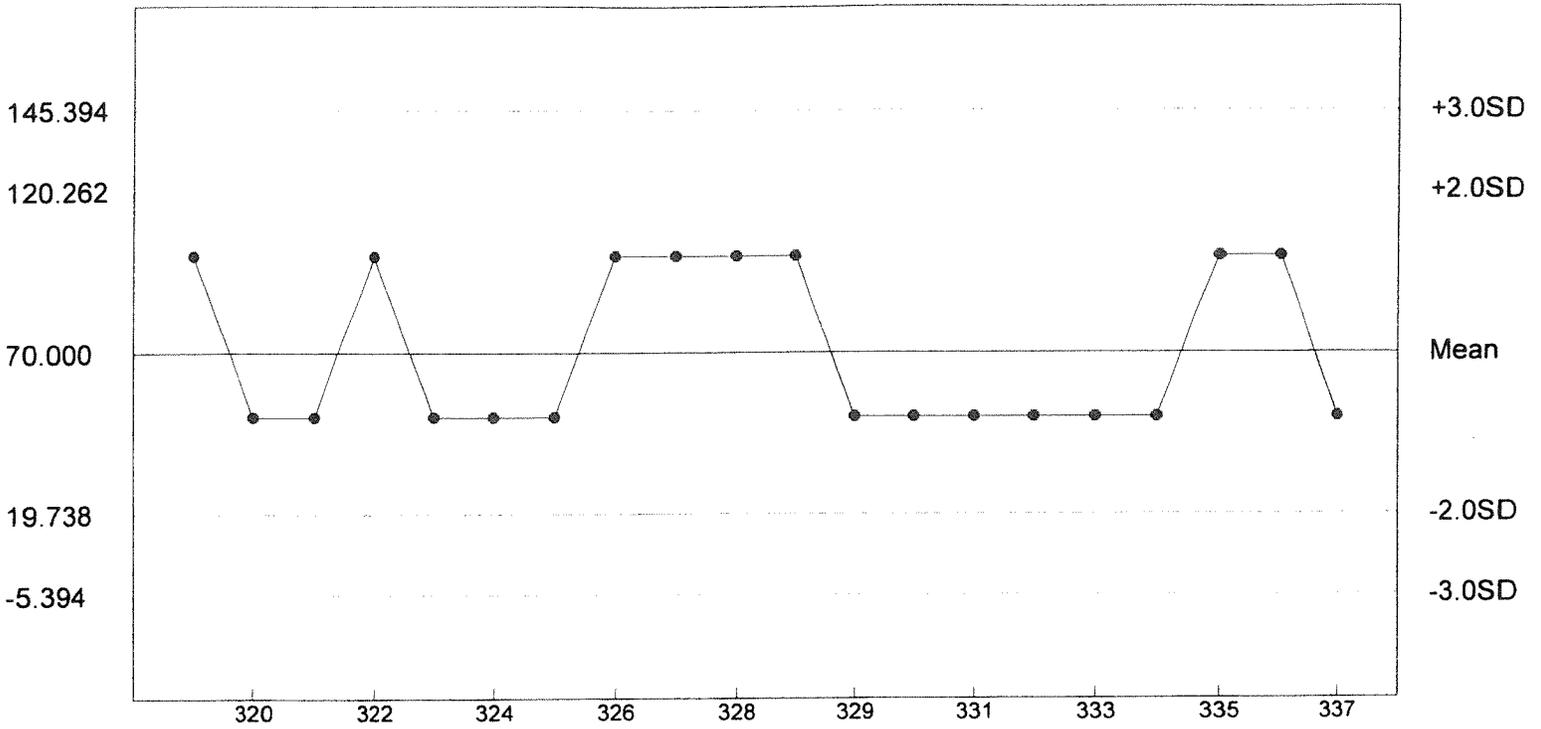
TEST DATE: 03/03/21 - 03/10/21
1500 Hrs -1600 Hrs

STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	9
200	40	15
400	40	40
800	40	40

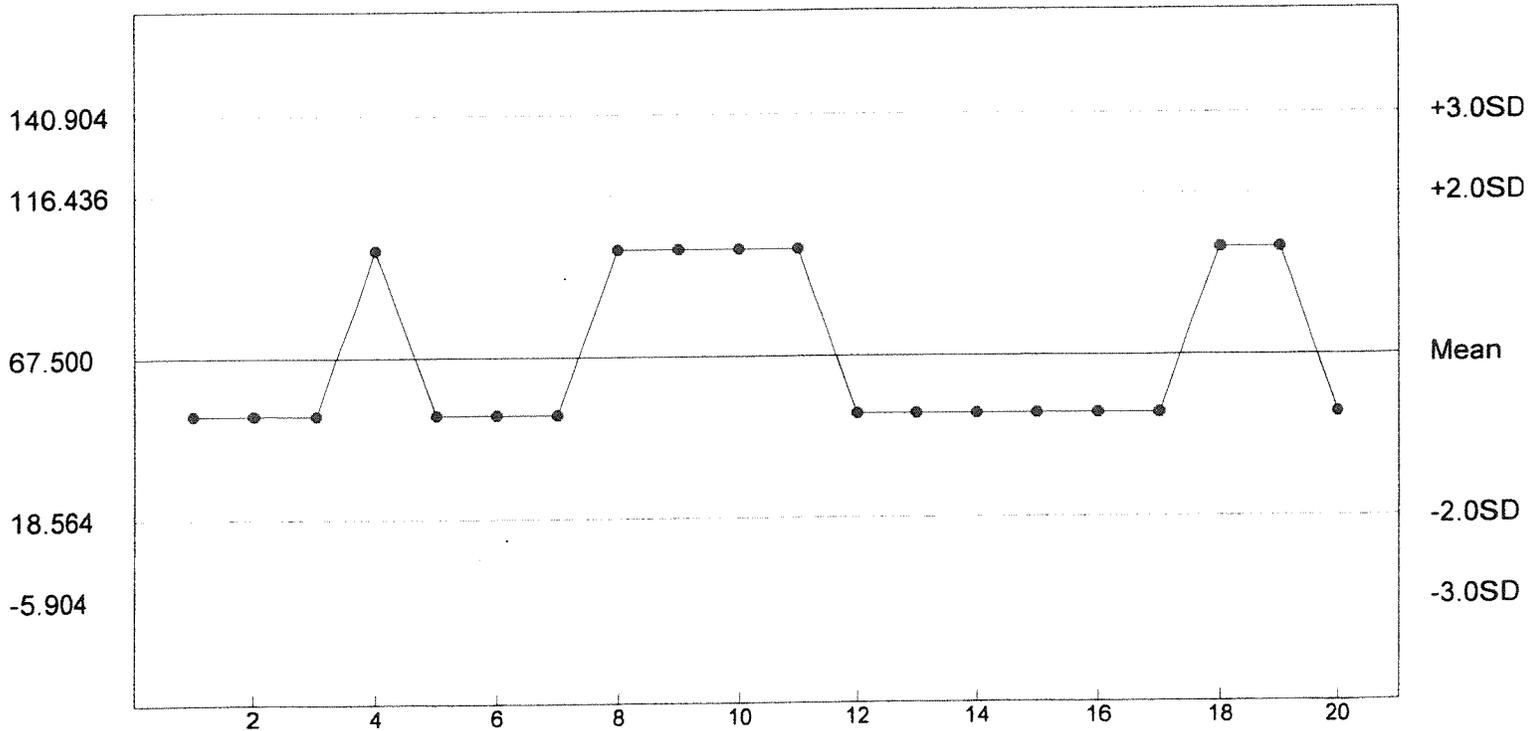
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



n= 20 Mean= 70.000 SD= 25.131 CV= 35.90% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



n= 20 Mean= 67.500 SD= 24.468 CV= 36.25% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32522 PROJECT NAME Tyler-Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite * Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE				# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSP EFF.	W.S. Besonnel	3/4/21 10AM	3/15/21 8AM	12		*			1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSP R.S.	P.O.T.	3/15/21	8AM	1

TYPE OF TEST 7 Day C/E 24hr P/F

NAME OF RECEIVING WATER Black Fork Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 3/15/21 TIME: 0800 RECEIVED BY AT THIS DATE/TIME: Rance Lanott 3/15/21
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rance Lanott DATE: 3/15/21 TIME: 1900 SAMPLE TEMP. @ RECEIPT: 2.5 2e1

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32522 PROJECT NAME Tyler - WestSide PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP EFF.	P.D.T.	3/16/21 10AM	3/17/21 8AM	12		<input checked="" type="checkbox"/>		4

RECEIVING WATER SAMPLES

TYPE OF TEST 7 Day C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSTP R.S.	P.D.T.	3-17-2021 8:00 AM	8A	1

RELINQUISHED BY: [Signature] DATE: 3/17/21 TIME: 0800 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 3/17/21 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 3.02C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32522 PROJECT NAME Tyer- Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF	P.D.T.	3/19/21 10am	3/19/21 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.D.T.	3/19/21	8 AM	1

7 Day 24hr
 TYPE OF TEST C/F P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 3/19/21 TIME: 0805 RECEIVED BY AT THIS DATE/TIME: Rancefano 3/19/21
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rancefano DATE: 3/19/21 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 2.3 DEI

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less ($p=0.05$) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

TABLE 1 (SHEET 4 OF 4)
 BIOMONITORING REPORTING FORM
PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 03/16/21
 FOR NET DMR**

I. <i>Ceriodaphnia dubia</i>	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	100%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	100%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
II. <i>Pimephales promelas</i>	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	100%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	100%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).

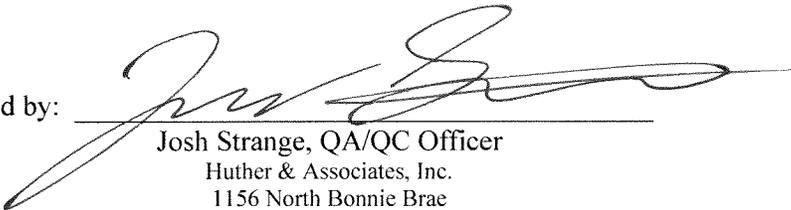
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

June 8, 2021

Reviewed by: _____



Josh Strange, QA/QC Officer
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client City of Tyler Sample Outfall 001
Facility Westside WWTF Laboratory I.D. 32810
Permit No. TPDES 10653-001 Begin Date June 8, 2021

Results: Pass Ceriodaphnia dubia survival and reproduction and Pimephales promelas survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up by Huthur & Associates on June 7, June 9, and June 11, 2021. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. Two toxicity tests were requested: a seven-day Ceriodaphnia dubia survival and reproduction test (EPA Method 1002.0), and a seven-day Pimephales promelas larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP Ceriodaphnia dubia



The seven-day Ceriodaphnia dubia survival and reproduction test was initiated at 1545 hours, June 8, 2021. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). C. dubia neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL Selenastrum capricornutum and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of five replicate beakers of eight larvae each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1530 hours, June 15, 2021. Survival and growth (weight) data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Pimephales promelas

There was 100% survival to *P. promelas* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

GROWTH
Pimephales promelas

P. promelas growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 8.1%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	06/07/21 06/09/21 06/11/21
LAB ID #	32810	DATE RECEIVED	06/07/21 06/09/21 06/11/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	06/08/21 1545
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	06/15/21 1545
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	D. Medina

SURVIVAL & REPRODUCTION SUMMARY

Performance Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	5	3	5	4	2	3	2	2	5	3
	5	3	5	4	2	3	2	2	5	3
06/13/21	9	9	6	11	8	7	9	7	10	8
	14	12	11	15	10	10	11	9	15	11
06/14/21	A	A	A	A	A	A	A	A	A	A
	14	12	11	15	10	10	11	9	15	11
06/15/21	14	12	13	13	14	13	12	12	13	12
	28	24	24	28	24	23	23	21	28	23
x# Young 24.6 C.V. 10.18% x%Survival 100% C.V. 0.00%										

True Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	2	5	4	4	3	2	5	4	3	4
	2	5	4	4	3	2	5	4	3	4
06/13/21	6	10	11	6	7	9	8	8	7	11
	8	15	15	10	10	11	13	12	10	15
06/14/21	A	A	A	A	A	A	A	A	A	A
	8	15	15	10	10	11	13	12	10	15
06/15/21	13	12	14	12	12	12	13	14	13	14
	21	27	29	22	22	23	26	26	23	29
x# Young 24.8 C.V. 11.99% x%Survival 100% C.V. 0.00%										

28% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	4	2	2	3	5	2	3	4	3	5
	4	2	2	3	5	2	3	4	3	5
06/13/21	11	7	8	7	9	6	10	8	6	9
	15	9	10	10	14	8	13	12	9	14
06/14/21	A	A	A	A	A	A	A	A	A	A
	15	9	10	10	14	8	13	12	9	14
06/15/21	13	14	12	13	13	14	14	13	12	12
	28	23	22	23	27	22	27	25	21	26
x# Young 24.4 C.V. 10.26% x%Survival 100% C.V. 0.00%										

37% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	3	5	4	4	5	2	5	4	3	3
	3	5	4	4	5	2	5	4	3	3
06/13/21	8	6	10	9	6	7	11	8	7	6
	11	11	14	13	11	9	16	12	10	9
06/14/21	A	A	A	A	A	A	A	A	A	A
	11	11	14	13	11	9	16	12	10	9
06/15/21	14	12	14	14	13	12	14	13	13	12
	25	23	28	27	24	21	30	25	23	21
x# Young 24.7 C.V. 11.93% x%Survival 100% C.V. 0.00%										

where: A = Alive ex 1:

4

 alive today ex 2:

5

 alive, 5 young today

5 = Alive, 5 young

4

 total young to date

12

 total young to date

D = Dead

D5 = 5 Young, Female died

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32810

Test Date: June 8, 2021

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	2	4	3	2	3	4	5	3	5	2
	2	4	3	2	3	4	5	3	5	2
06/13/21	7	9	11	6	8	9	7	10	7	7
	9	13	14	8	11	13	12	13	12	9
06/14/21	A	A	A	A	A	A	A	A	A	A
	9	13	14	8	11	13	12	13	12	9
06/15/21	13	12	12	14	13	14	14	12	13	13
	22	25	26	22	24	27	26	25	25	22
x# Young 24.4 C.V. 7.53% x%Survival 100% C.V. 0.00%										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	3	2	4	3	2	2	5	3	4	2
	3	2	4	3	2	2	5	3	4	2
06/13/21	11	6	6	8	7	9	10	7	8	10
	14	8	10	11	9	11	15	10	12	12
06/14/21	A	A	A	A	A	A	A	A	A	A
	14	8	10	11	9	11	15	10	12	12
06/15/21	12	12	14	13	13	12	14	13	13	13
	26	20	24	24	22	23	29	23	25	25
x# Young 24.1 C.V. 10.06% x%Survival 100% C.V. 0.00%										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/09/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/10/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/11/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/12/21	5	4	4	3	2	3	4	2	2	5
	5	4	4	3	2	3	4	2	2	5
06/13/21	8	11	6	10	9	8	6	7	9	7
	13	15	10	13	11	11	10	9	11	12
06/14/21	A	A	A	A	A	A	A	A	A	A
	13	15	10	13	11	11	10	9	11	12
06/15/21	13	14	12	13	13	12	12	13	14	12
	26	29	22	26	24	23	22	22	25	24
x# Young 24.3 C.V. 9.31% x%Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A
4

 alive today
 total young to date

ex 2:

5
12

 alive, 5 young today
 total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32810

Test Date: June 8, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/08/21	Start	25.0	1	7.84	7.18	6.92	6.85	6.81	6.83	6.78	ID
06/09/21	24 Hr.	24.0	1	7.99	7.23	7.17	7.17	7.17	7.17	7.18	JF
06/09/21	Renew	25.0	1	7.89	6.96	6.92	6.92	6.93	6.90	6.93	JF
06/10/21	48 Hr.	24.2	1	8.25	7.98	7.83	7.79	7.78	7.79	7.84	JF
06/10/21	Renew	25.0	2	8.23	8.23	7.94	7.78	7.71	7.67	7.60	ID
06/11/21	72 Hr.	24.1	2	8.23	8.10	7.89	7.92	7.92	7.91	7.90	ID
06/11/21	Renew	24.2	2	8.47	8.45	8.01	7.79	7.70	7.66	7.59	JS
06/12/21	96 Hr.	24.0	2	8.23	7.94	7.73	7.72	7.70	7.71	7.71	CW
06/12/21	Renew	25.0	3	8.35	8.01	7.46	7.42	7.37	7.34	7.32	ID
06/13/21	120 Hr.	23.9	3	8.16	7.88	7.81	7.81	7.83	7.85	7.85	JF
06/13/21	Renew	25.0	3	8.21	7.56	7.37	7.34	7.31	7.34	7.29	CW
06/14/21	144 Hr.	23.9	3	8.37	7.89	7.59	7.54	7.53	7.54	7.49	JF
06/14/21	Renew	25.0	3	8.20	7.70	7.48	7.45	7.41	7.44	7.41	JF
06/15/21	168 Hr.	24.0	3	8.15	8.01	7.81	7.74	7.70	7.68	7.68	ID

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/08/21	Start	25.0	1	7.66	7.58	8.64	7.69	8.64	8.48	8.62	ID
06/09/21	24 Hr.	24.0	1	8.45	7.67	8.42	8.37	8.59	8.55	8.63	JF
06/09/21	Renew	25.0	1	8.43	8.43	8.43	8.30	8.25	8.12	8.36	JF
06/10/21	48 Hr.	24.2	1	8.22	8.22	8.33	8.29	8.34	8.24	8.25	JF
06/10/21	Renew	25.0	2	7.18	7.87	7.74	7.31	8.52	8.48	8.32	ID
06/11/21	72 Hr.	24.1	2	7.15	7.34	7.84	7.56	7.86	7.86	7.04	ID
06/11/21	Renew	24.2	2	7.87	8.26	8.30	8.23	8.28	8.35	8.35	JS
06/12/21	96 Hr.	24.0	2	8.08	8.05	8.13	8.10	8.02	8.07	8.05	CW
06/12/21	Renew	25.0	3	8.16	8.55	8.09	8.49	8.34	8.56	8.51	ID
06/13/21	120 Hr.	23.9	3	8.48	8.39	8.40	8.44	8.42	8.35	8.38	JF
06/13/21	Renew	25.0	3	8.35	8.41	8.43	8.40	8.39	8.34	8.34	CW
06/14/21	144 Hr.	23.9	3	7.74	7.77	8.59	7.62	7.77	7.77	8.53	JF
06/14/21	Renew	25.0	3	8.57	8.49	8.53	8.62	8.48	8.58	8.58	JF
06/15/21	168 Hr.	24.0	3	8.23	7.82	7.23	7.67	8.65	7.70	7.20	ID

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32810

Test Date: June 8, 2021

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/08/21	1	6.68	7.71	80	48	826	<0.01	N/A	ID
06/10/21	2	7.55	8.64	64	56	727	<0.01	N/A	ID
06/12/21	3	7.46	7.80	56	50	716	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/08/21	RS1	7.18	7.58	48	24	139	<0.01	N/A	ID
06/10/21	RS2	7.73	8.25	44	42	229	<0.01	N/A	ID
06/12/21	RS3	8.01	8.55	80	48	278	<0.01	N/A	ID

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	21.000	29.000	24.800
2	28% Effluent	10	21.000	28.000	24.400
3	37% Effluent	10	21.000	30.000	24.700
4	50% Effluent	10	22.000	27.000	24.400
5	66% Effluent	10	20.000	29.000	24.100
6	88% Effluent	10	22.000	29.000	24.300

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	8.844	2.974	0.940	11.99
2	28% Effluent	6.267	2.503	0.792	10.26
3	37% Effluent	8.678	2.946	0.932	11.93
4	50% Effluent	3.378	1.838	0.581	7.53
5	66% Effluent	5.878	2.424	0.767	10.06
6	88% Effluent	5.122	2.263	0.716	9.31

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	1	22	19	15	3

Calculated Chi-Square goodness of fit test statistic = 7.0672
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.62

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	3.350	0.670	0.105
Within (Error)	54	343.500	6.361	
Total	59	346.850		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Transformed	Mean	T Stat	Sig
		Mean	Calculated In Original Units		
1	Control	24.800	24.800		
2	28% Effluent	24.400	24.400	0.355	
3	37% Effluent	24.700	24.700	0.089	
4	50% Effluent	24.400	24.400	0.355	
5	66% Effluent	24.100	24.100	0.621	
6	88% Effluent	24.300	24.300	0.443	

Dunnnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
No statistically significant difference

Dunnnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	% of Control	Difference from Control
			Diff (In Orig. Units)	Control		
1	Control	10				
2	28% Effluent	10	2.606	10.5	0.400	
3	37% Effluent	10	2.606	10.5	0.100	
4	50% Effluent	10	2.606	10.5	0.400	
5	66% Effluent	10	2.606	10.5	0.700	
6	88% Effluent	10	2.606	10.5	0.500	

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	06/07/21 06/09/21 06/11/21
LAB ID #	32810	DATE RECEIVED	06/07/21 06/09/21 06/11/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	06/08/21 1530
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	06/15/21 1530
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	06/09/21					06/10/21					06/11/21					06/12/21					06/13/21				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	06/14/21					06/15/21					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4650	0.4270	0.4560	0.4830	0.4520	0.4566	4.47
TCON	0.4570	0.4670	0.4220	0.4360	0.4290	0.4422	4.31
28%	0.4760	0.4850	0.4290	0.4450	0.4670	0.4604	4.99
37%	0.4520	0.4240	0.4870	0.4650	0.4590	0.4574	4.99
50%	0.4860	0.4740	0.4250	0.4700	0.4350	0.4580	5.78
66%	0.4200	0.4690	0.4870	0.4350	0.4710	0.4564	6.09
88%	0.4480	0.4820	0.4230	0.4650	0.4770	0.4590	5.23

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32810

Test Date: June 8, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
06/08/21	Start	25.0	1	7.84	7.18	6.92	6.85	6.81	6.83	6.78	ID
06/09/21	24 Hr.	24.1	1	7.44	6.61	6.70	6.73	6.71	6.77	6.91	JF
06/09/21	Renew	25.0	1	7.89	6.96	6.92	6.92	6.93	6.90	6.93	JF
06/10/21	48 Hr.	24.3	1	7.41	7.19	7.17	7.14	7.11	7.17	7.16	ID
06/10/21	Renew	25.0	2	8.23	8.23	7.94	7.78	7.71	7.67	7.60	ID
06/11/21	72 Hr.	24.2	2	7.68	7.30	7.17	7.19	7.22	7.22	7.28	JF
06/11/21	Renew	25.0	2	8.47	8.45	8.01	7.79	7.70	7.66	7.59	JS
06/12/21	96 Hr.	24.2	2	8.06	7.80	7.64	7.55	7.53	7.60	7.63	ID
06/12/21	Renew	25.0	3	8.35	8.01	7.46	7.42	7.37	7.34	7.32	ID
06/13/21	120 Hr.	24.0	3	8.00	7.41	7.32	7.35	7.32	7.35	7.44	CW
06/13/21	Renew	25.0	3	8.21	7.56	7.37	7.34	7.31	7.34	7.29	CW
06/14/21	144 Hr.	24.0	3	7.85	7.25	7.21	7.24	7.26	7.33	7.45	JF
06/14/21	Renew	25.0	3	8.20	7.70	7.48	7.45	7.41	7.44	7.41	JF
06/15/21	168 Hr.	24.1	3	7.61	7.35	7.25	7.24	7.19	7.29	7.49	ID

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
06/08/21	Start	25.0	1	7.66	7.58	8.64	7.69	8.64	8.48	8.62	ID
06/09/21	24 Hr.	24.1	1	7.67	7.74	7.76	7.70	8.53	7.67	8.44	JF
06/09/21	Renew	25.0	1	8.43	8.43	8.43	8.30	8.25	8.12	8.36	JF
06/10/21	48 Hr.	24.3	1	8.57	8.25	8.57	8.61	7.69	7.73	7.74	ID
06/10/21	Renew	25.0	2	7.18	7.87	7.74	7.31	8.52	8.48	8.32	ID
06/11/21	72 Hr.	24.2	2	8.01	8.39	8.19	8.13	8.10	8.21	8.47	JF
06/11/21	Renew	25.0	2	7.87	8.26	8.30	8.23	8.28	8.35	8.35	JS
06/12/21	96 Hr.	24.2	2	8.36	8.57	8.35	7.71	7.71	8.65	8.57	ID
06/12/21	Renew	25.0	3	8.16	8.55	8.09	8.49	8.34	8.56	8.51	ID
06/13/21	120 Hr.	24.0	3	8.29	8.27	8.38	8.31	8.18	7.80	8.29	CW
06/13/21	Renew	25.0	3	8.35	8.41	8.43	8.40	8.39	8.34	8.34	CW
06/14/21	144 Hr.	24.0	3	7.80	7.77	8.56	7.70	7.76	8.58	7.09	JF
06/14/21	Renew	25.0	3	8.57	8.49	8.53	8.62	8.48	8.58	8.58	JF
06/15/21	168 Hr.	24.1	3	8.65	8.55	8.62	7.98	7.69	8.63	8.60	ID

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 32810

Test Date: June 8, 2021

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/08/21	1	6.68	7.71	80	48	826	<0.01	N/A	ID
06/10/21	2	7.55	8.64	64	56	727	<0.01	N/A	ID
06/12/21	3	7.46	7.80	56	50	716	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/08/21	RS1	7.18	7.58	48	24	139	<0.01	N/A	ID
06/10/21	RS2	7.73	8.25	44	42	229	<0.01	N/A	ID
06/12/21	RS3	8.01	8.55	80	48	278	<0.01	N/A	ID

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.422	0.467	0.442
2	28% Effluent	5	0.429	0.485	0.460
3	37% Effluent	5	0.424	0.487	0.457
4	50% Effluent	5	0.425	0.486	0.458
5	66% Effluent	5	0.420	0.487	0.456
6	88% Effluent	5	0.423	0.482	0.459

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.000	0.019	0.009	4.31
2	28% Effluent	0.001	0.023	0.010	4.99
3	37% Effluent	0.001	0.023	0.010	4.99
4	50% Effluent	0.001	0.026	0.012	5.78
5	66% Effluent	0.001	0.028	0.012	6.09
6	88% Effluent	0.001	0.024	0.011	5.23

Shapiro - Wilk's Test For Normality

D = 0.014

W = 0.917

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data **Pass** normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 0.61

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.001	0.000	0.388
Within (Error)	24	0.014	0.001	
Total	29	0.015		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	0.442	0.442		
2	28% Effluent	0.460	0.460	-1.198	
3	37% Effluent	0.457	0.457	-1.000	
4	50% Effluent	0.458	0.458	-1.040	
5	66% Effluent	0.456	0.456	-0.935	
6	88% Effluent	0.459	0.459	-1.106	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	% of Control	Difference from Control
			Diff (In Orig. Units)			
1	Control	5				
2	28% Effluent	5	0.036		8.1	-0.018
3	37% Effluent	5	0.036		8.1	-0.015
4	50% Effluent	5	0.036		8.1	-0.016
5	66% Effluent	5	0.036		8.1	-0.014
6	88% Effluent	5	0.036		8.1	-0.017

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHНИЯ DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Tyler-Westside
 OUTFALL 001
 LAB ID # 32810

START DATE/TIME 06-08-21 DM 1545
 END DATE/TIME 6-15-21 TG 1545

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/9	A	A	A	A	A	A	A	A	A	A	TG	1545
06/10	A	A	A	A	A	A	A	A	A	A	DM	1430
6/11	A	A	A	A	A	A	A	A	A	A	TG	1330
06/12	5	3	5	4	2	3	2	2	5	3	DM	1400
06/13	9	9	6	11	8	7	9	7	10	8	DM	1115
6/14	A	A	A	A	A	A	A	A	A	A	TG	1345
6/15	14	12	13	13	14	13	12	12	13	12	TG	1545
	28	24	24	28	24	23	23	21	28	23		

\bar{x} # Young w/o Dead = 24.6 CV% = 10.18

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/9	A	A	A	A	A	A	A	A	A	A	TG	1545
06/10	A	A	A	A	A	A	A	A	A	A	DM	1430
6/11	A	A	A	A	A	A	A	A	A	A	TG	1330
06/12	2	5	4	4	3	2	5	4	3	4	DM	1400
06/13	6	10	11	6	7	9	8	8	7	11	DM	1115
6/14	A	A	A	A	A	A	A	A	A	A	TG	1345
6/15	13	12	14	12	12	12	13	14	13	14	TG	1545
	21	27	29	22	22	23	26	26	23	29		

\bar{x} # Young w/o Dead = 24.8 CV% = 11.99

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/9	A	A	A	A	A	A	A	A	A	A	TG	1545
06/10	A	A	A	A	A	A	A	A	A	A	DM	1430
6/11	A	A	A	A	A	A	A	A	A	A	TG	1330
06/12	4	2	2	3	5	2	3	4	3	5	DM	1400
06/13	11	7	8	7	9	6	10	8	6	9	DM	1115
6/14	A	A	A	A	A	A	A	A	A	A	TG	1345
6/15	13	14	12	13	14	14	13	12	12		TG	1545
	28	23	22	23	27	22	27	25	21	26		

\bar{x} # Young w/o Dead = 24.4 CV% = 10.26

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/9	A	A	A	A	A	A	A	A	A	A	TG	1545
06/10	A	A	A	A	A	A	A	A	A	A	DM	1430
6/11	A	A	A	A	A	A	A	A	A	A	TG	1330
06/12	3	5	4	4	5	2	5	4	3	3	DM	1400
06/13	8	6	10	9	6	7	11	8	7	6	DM	1115
6/14	A	A	A	A	A	A	A	A	A	A	TG	1345
6/15	14	12	14	14	13	12	14	13	13	12	TG	1545
	25	23	28	27	24	21	30	25	23	21		

\bar{x} # Young w/o Dead = 24.7 CV% = 11.93

\bar{x} # Young w/Dead = CV% =

\bar{x} % Survival = 100 CV% = 0.00

**7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY: Tyler - Westside DATE/TIME STARTED: 6-8-21 JK 1530
 OUTFALL #: 001 PROJECT #: 32810 DATE/TIME ENDED: 6-15-21 MH 1530
 ORGANISM ID#: PP0-21-158

Conc.	6-9-21 JK 1530					6-10-21 JK 1040					6-11-21 JS 0905					6-12-21 MH 0840					6-13-21 MH 0845									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
Pear	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Tear	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
60	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	6-14-21 JK 1025					6-15-21 MH 1530					Mean Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
Pear	8	8	8	8	8	8	8	8	8	8	100.00	0.00
Tear	8	8	8	8	8	8	8	8	8	8	100.00	0.00
28	8	8	8	8	8	8	8	8	8	8	100.00	0.00
37	8	8	8	8	8	8	8	8	8	8	100.00	0.00
50	8	8	8	8	8	8	8	8	8	8	100.00	0.00
60	8	8	8	8	8	8	8	8	8	8	100.00	0.00
88	8	8	8	8	8	8	8	8	8	8	100.00	0.00

Client / Facility Tyler-Westside
 Lab ID Number 32810
 Outfall Number 001
 Test Date 6-8-21

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Sampl. No.	pH	DO	Hardness mg/L CaCO ₃	Alkalinity mg/L CaCO ₃	Conduct. umhos/cm	Resid. Cl ₂ mg/L	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L	Analyst
6-8-21	1	6.68	7.71	80	48	826	<0.01	N/A	ID
6-10-21	2	7.55	8.64	64	56	727	<0.01	N/A	ID
6-12-21	3	7.46	7.80	56	50	716	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Sampl. No.	pH	DO	Hardness mg/L CaCO ₃	Alkalinity mg/L CaCO ₃	Conduct. umhos/cm	Resid. Cl ₂ mg/L	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L	Analyst
6-8-21	RS 1	7.18	7.58	48	24	139	<0.01	N/A	ID
6-10-21	RS 2	7.73	8.25	44	42	229	<0.01	N/A	ID
6-12-21	RS 3	8.01	8.55	80	48	278	<0.01	N/A	ID

Notes:

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 7-Days

TEST NUMBER: 6

TEST DATE: 06/01/21 - 06/08/21
1500 Hrs - 1500 Hrs

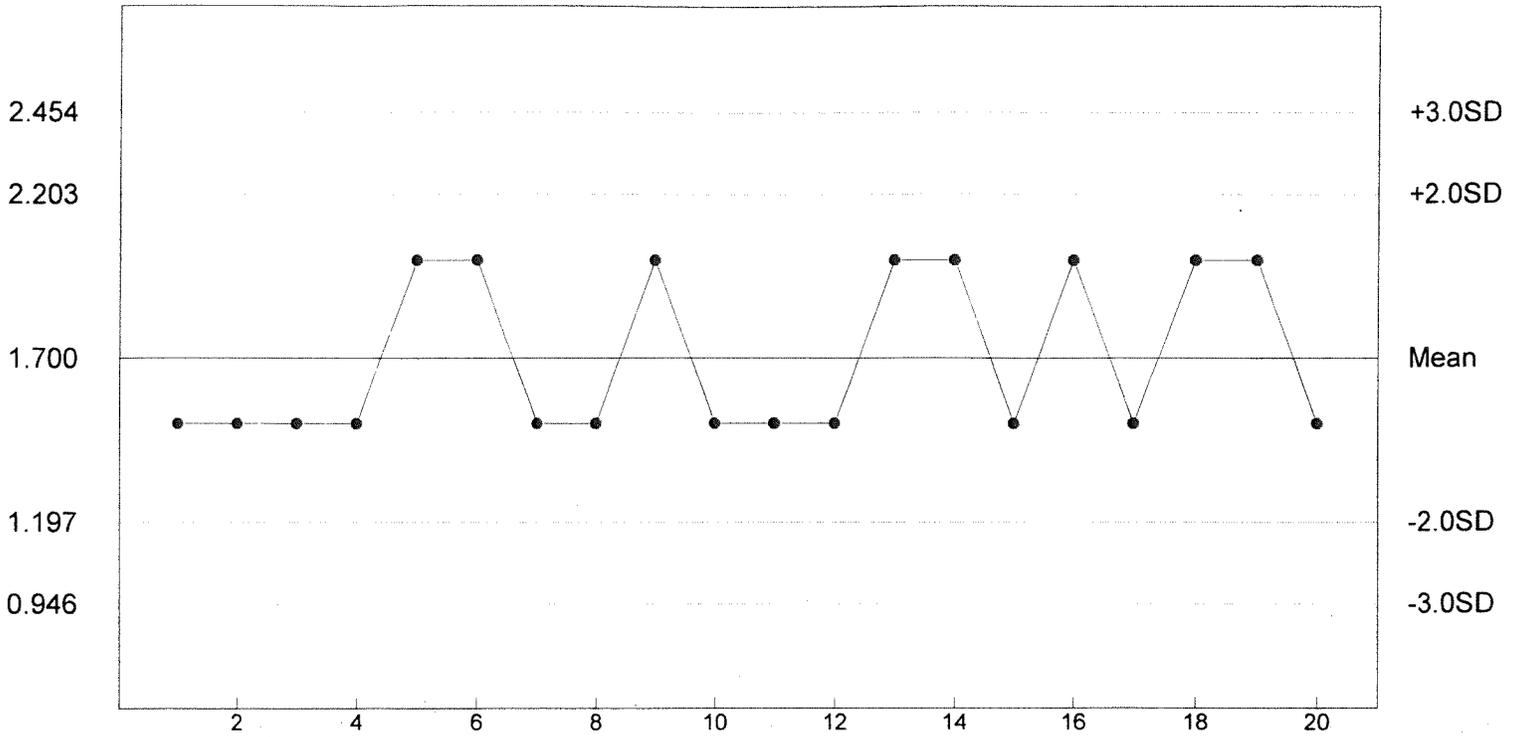
STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	8
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.0 g/L	0.5 g/L

Reference Tox Sodium Chloride g/L

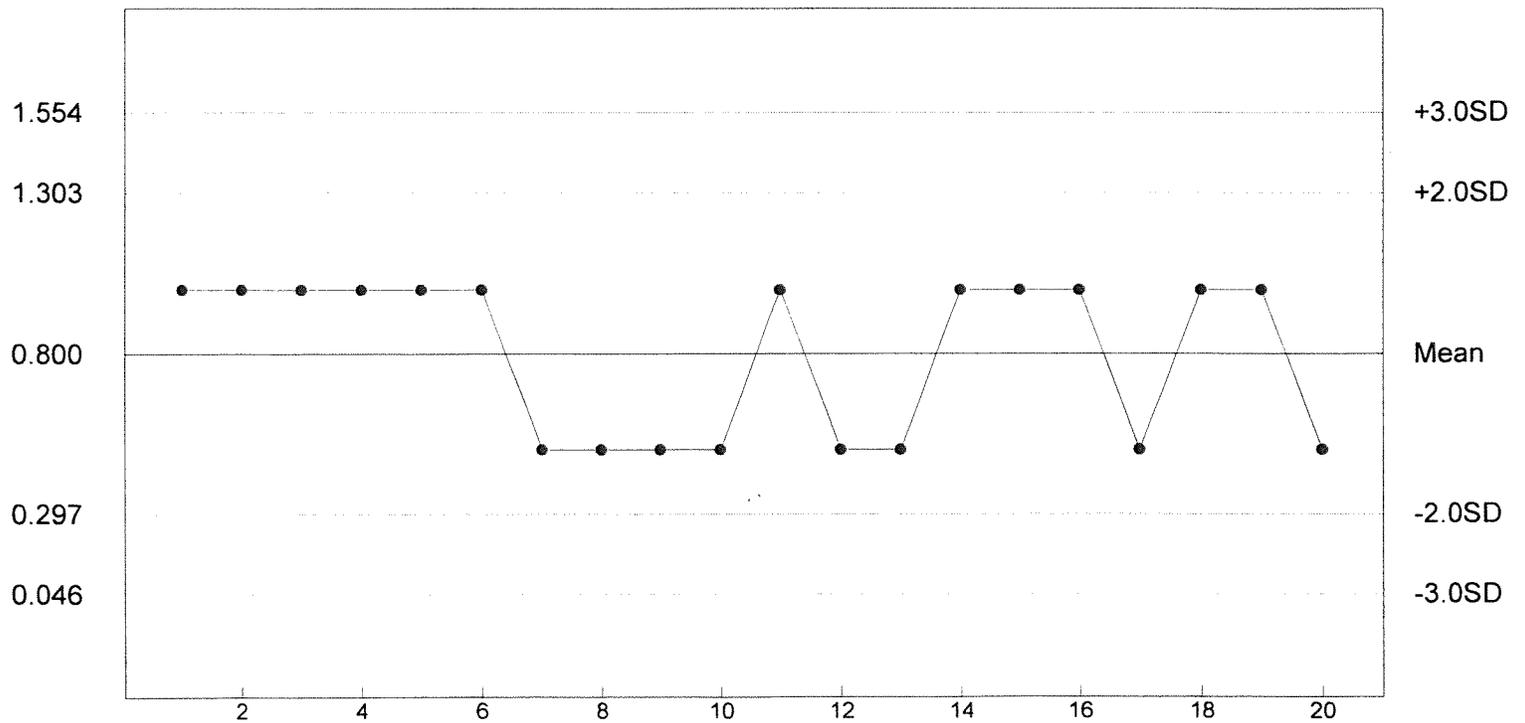
C. dubia Survival - NOEC



n= 20 Mean= 1.700 SD= 0.251 CV= 14.78% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.800 SD= 0.251 CV= 31.41% Min= 0.500 Max= 1.000

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*

CHEMICAL: Copper Nitrate

DURATION: 7-Days

TEST NUMBER: 6

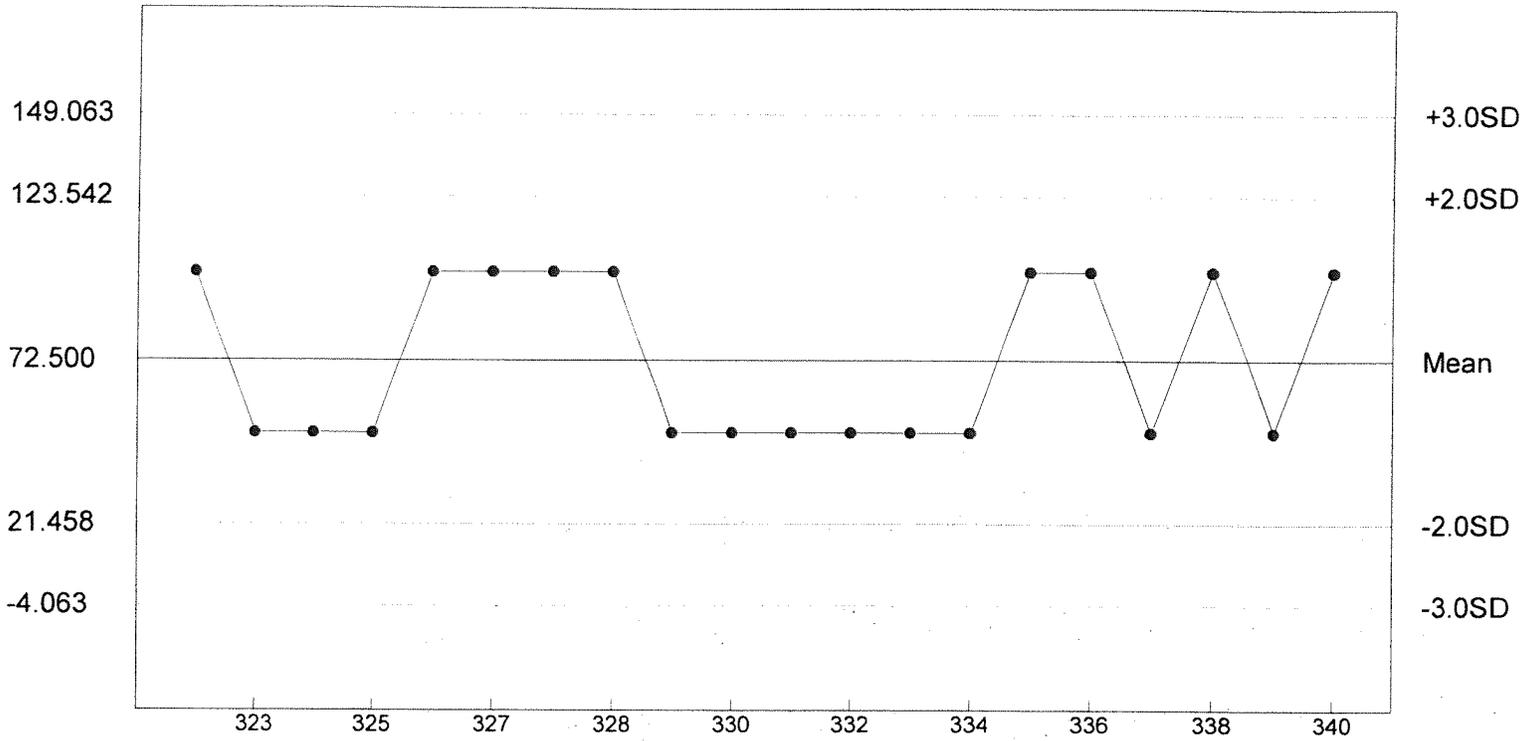
TEST DATE: 06/01/21 - 06/08/21
1500 Hrs -1500 Hrs

STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	2
200	40	7
400	40	33
800	40	40

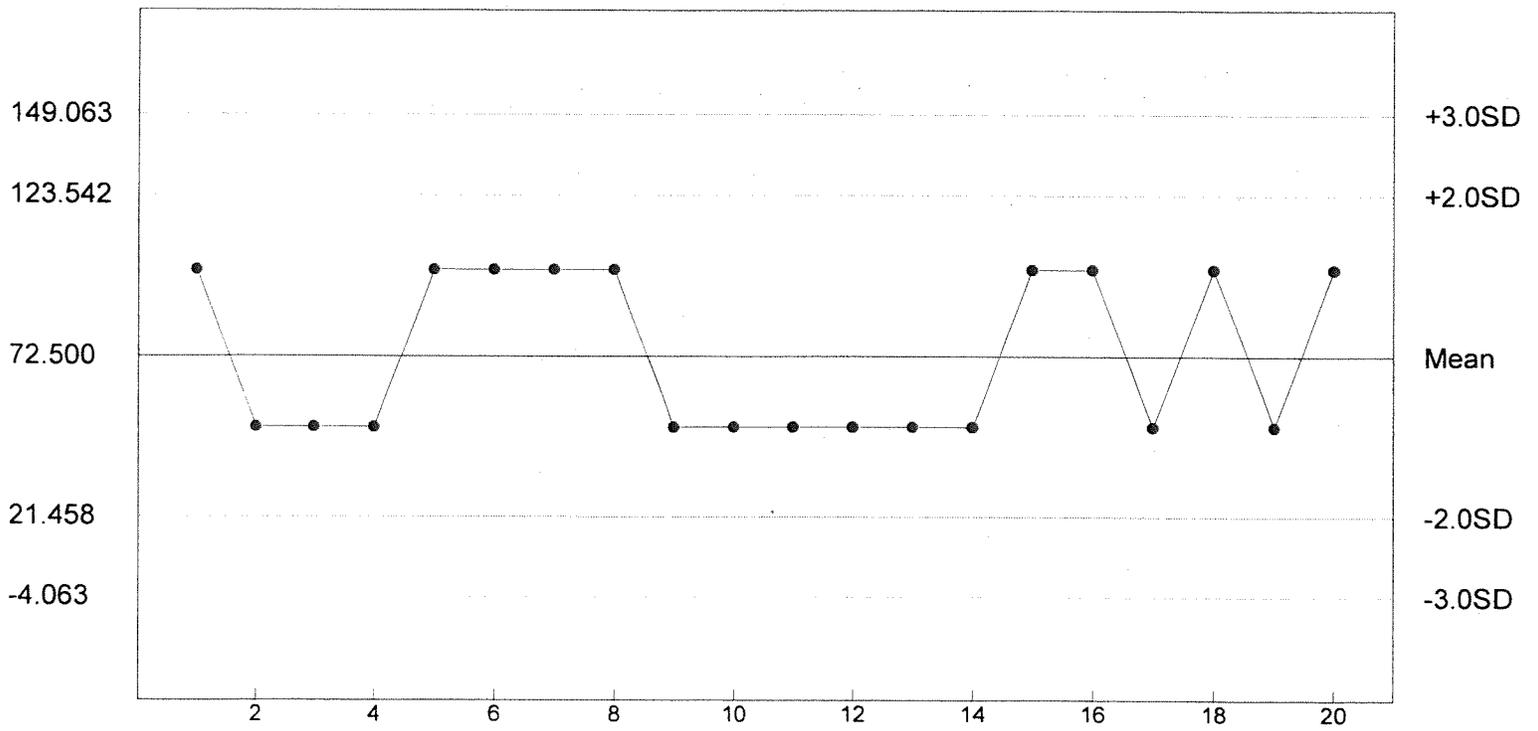
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
200 ug/L	100 ug/L	200 ug/L	100 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



n= 20 Mean= 72.500 SD= 25.521 CV= 35.20% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



n= 20 Mean= 72.500 SD= 25.521 CV= 35.20% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32810 PROJECT NAME Tyler - westSide PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite * Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF	P.D.T.	6/6/21 10am	6/7/21 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.D.T.	6/7/21	8am	1

TYPE OF TEST 7 Day C/F

NAME OF RECEIVING WATER Black Fork Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/7/21 TIME: 1330 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 6/7/21 TIME: 1630 SAMPLE TEMP. @ RECEIPT: 3, 8 °F

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32810 PROJECT NAME Tyer - Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite * Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF	P.D.T.	6/9/21 10A	6/9/21 8A	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.D.T.	6/9/21	8A	1

TYPE OF TEST 7 Day CIF
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/9/21 TIME: 1500 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 6/9/21 TIME: 1830 SAMPLE TEMP. @ RECEIPT: 2.8°C
 RECEIVED BY AT THIS DATE/TIME: Rance Sam # 6/9/21 1500

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32810 PROJECT NAME Tyler - Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite * Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S. EFF.	P.A.T.	6/10/21 10am	6/11/21 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S. R.S.	P.A.T.	6/11/21	8am	1

TYPE OF TEST 7 Day C/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/11/21 TIME: 1420 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered 1730 Other _____
 RECEIVED: [Signature] DATE: 6/11/21 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 2.0 DEI

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less (p=0.05) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

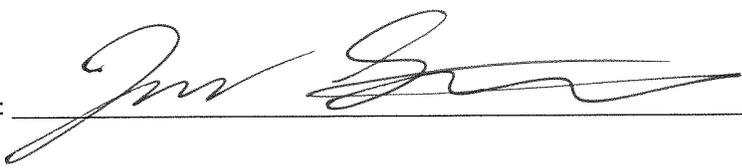
Reviewed by: 

TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING FORM

PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable

Reviewed by:  Huther & Associates

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 06/08/21
 FOR NET DMR**

I. *Ceriodaphnia dubia*

	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	100%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	100%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q

II. *Pimephales promelas*

	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	100%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	100%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q

22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

- 9 = No retests required.
- Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).

**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia

December 14, 2021

Reviewed by:



Josh Strange, QA/QC Officer
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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A true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test organisms and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. The test ended at 1400 hours, December 21, 2021. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

REPRODUCTION
Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 8.9%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	12/13/21 12/15/21 12/17/21
LAB ID #	33473	DATE RECEIVED	12/13/21 12/15/21 12/17/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	12/14/21 1400
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	12/21/21 1400
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	T. Geiger

SURVIVAL & REPRODUCTION SUMMARY

Performance Control											
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
12/15/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/16/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/17/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/18/21	4	3	5	3	2	2	2	5	4	3	
	4	3	5	3	2	2	2	5	4	3	
12/19/21	8	10	8	9	7	6	8	6	7	9	
	12	13	13	12	9	8	10	11	11	12	
12/20/21	A	A	A	A	A	A	A	A	A	A	
	12	13	13	12	9	8	10	11	11	12	
	13	14	13	13	12	13	12	12	12	14	
12/21/21	25	27	26	25	21	21	22	23	23	26	
x # Young		23.9				C.V.		9.14%			
x%Survival		100%				C.V.		0.00%			

True Control											
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
12/15/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/16/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/17/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/18/21	3	4	5	5	2	2	3	5	4	3	
	3	4	5	5	2	2	3	5	4	3	
12/19/21	10	6	8	11	9	9	7	10	7	6	
	13	10	13	16	11	11	10	15	11	9	
12/20/21	A	A	A	A	A	A	A	A	A	A	
	13	10	13	16	11	11	10	15	11	9	
	12	14	13	14	14	12	13	12	13	13	
12/21/21	25	24	26	30	25	23	23	27	24	22	
x # Young		24.9				C.V.		9.36%			
x%Survival		100%				C.V.		0.00%			

28%Effluent											
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
12/15/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/16/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/17/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/18/21	5	2	5	3	2	4	3	3	4	3	
	5	2	5	3	2	4	3	3	4	3	
12/19/21	10	7	11	9	11	8	10	7	6	6	
	15	9	16	12	13	12	13	10	10	9	
12/20/21	A	A	A	A	A	A	A	A	A	A	
	15	9	16	12	13	12	13	10	10	9	
	14	12	14	14	13	12	13	13	13	13	
12/21/21	29	21	30	26	26	24	26	23	23	22	
x # Young		25.0				C.V.		11.78%			
x%Survival		100%				C.V.		0.00%			

37%Effluent											
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
12/15/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/16/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/17/21	A	A	A	A	A	A	A	A	A	A	
	0	0	0	0	0	0	0	0	0	0	
12/18/21	4	3	5	3	2	3	5	4	4	3	
	4	3	5	3	2	3	5	4	4	3	
12/19/21	8	10	6	8	11	9	7	10	7	7	
	12	13	11	11	13	12	12	14	11	10	
12/20/21	A	A	A	A	A	A	A	A	A	A	
	12	13	11	11	13	12	12	14	11	10	
	13	12	13	13	14	12	14	14	14	12	
12/21/21	25	25	24	24	27	24	26	28	25	22	
x # Young		25.0				C.V.		6.80%			
x%Survival		100%				C.V.		0.00%			

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33473

Test Date: December 14, 2021

50% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
12/15/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/16/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/18/21	3	5	3	2	2	4	3	2	5	3
	3	5	3	2	2	4	3	2	5	3
12/19/21	6	9	11	7	10	8	10	8	7	9
	9	14	14	9	12	12	13	10	12	12
12/20/21	A	A	A	A	A	A	A	A	A	A
	9	14	14	9	12	12	13	10	12	12
	13	13	14	13	12	13	12	12	14	13
12/21/21	22	27	28	22	24	25	25	22	26	25
x# Young 24.6 C.V. 8.61% x%Survival 100% C.V. 0.00%										

66% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
12/15/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/16/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/18/21	3	4	2	5	3	3	2	4	3	5
	3	4	2	5	3	3	2	4	3	5
12/19/21	8	8	8	9	6	11	9	8	10	7
	11	12	10	14	9	14	11	12	13	12
12/20/21	A	A	A	A	A	A	A	A	A	A
	11	12	10	14	9	14	11	12	13	12
	14	13	13	13	14	12	14	13	14	13
12/21/21	25	25	23	27	23	26	25	25	27	25
x# Young 25.1 C.V. 5.46% x%Survival 100% C.V. 0.00%										

88% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
12/15/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/16/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/17/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/18/21	5	2	2	4	3	2	4	3	4	3
	5	2	2	4	3	2	4	3	4	3
12/19/21	8	11	7	10	8	11	9	6	8	11
	13	13	9	14	11	13	13	9	12	14
12/20/21	A	A	A	A	A	A	A	A	A	A
	13	13	9	14	11	13	13	9	12	14
	12	14	13	14	14	12	14	13	13	12
12/21/21	25	27	22	28	25	25	27	22	25	26
x# Young 25.2 C.V. 7.89% x%Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A	alive today
4	total young to date

ex 2:

5	alive, 5 young today
12	total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33473

Test Date: December 14, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
12/14/21	Start	25.0	1	8.44	8.02	7.71	7.65	7.61	7.56	7.57	ID
12/15/21	24 Hr.	24.0	1	8.51	8.25	8.02	8.00	8.01	8.01	8.04	ID
12/15/21	Renew	24.0	1	8.51	8.02	7.71	7.69	7.68	7.63	7.62	AM
12/16/21	48 Hr.	24.3	1	8.57	8.24	7.91	7.87	7.91	7.97	8.06	ID
12/16/21	Renew	25.0	2	8.42	8.19	7.72	7.62	7.54	7.51	7.49	ID
12/17/21	72 Hr.	23.2	2	8.54	8.22	7.68	7.64	7.58	7.51	7.42	ID
12/17/21	Renew	25.0	2	8.53	8.21	7.87	7.84	7.81	7.74	7.67	ID
12/18/21	96 Hr.	23.3	2	7.89	7.80	7.77	7.79	7.79	7.76	7.74	ID
12/18/21	Renew	25.0	3	8.61	8.23	7.68	7.69	7.71	7.49	7.19	ID
12/19/21	120 Hr.	22.6	3	8.46	8.08	7.64	7.53	7.67	7.26	6.97	AM
12/19/21	Renew	22.4	3	8.43	7.60	7.47	7.42	7.56	7.02	6.75	AM
12/20/21	144 Hr.	22.5	3	8.40	7.72	7.43	7.45	7.58	7.24	7.08	AM
12/20/21	Renew	22.5	3	8.36	7.61	7.37	7.43	7.54	7.25	7.09	AM
12/21/21	168 Hr.	22.4	3	8.69	8.31	7.81	7.81	7.80	7.73	7.62	ID

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
12/14/21	Start	25.0	1	7.12	7.88	8.21	7.19	7.97	8.65	7.82	ID
12/15/21	24 Hr.	24.0	1	7.31	8.03	7.14	7.04	7.59	7.04	7.31	ID
12/15/21	Renew	24.0	1	7.71	7.67	7.52	8.64	7.94	7.68	8.54	AM
12/16/21	48 Hr.	24.3	1	7.13	7.42	7.16	7.38	7.66	8.28	8.02	ID
12/16/21	Renew	25.0	2	7.27	8.19	8.56	7.69	7.94	8.45	8.39	ID
12/17/21	72 Hr.	23.2	2	8.09	8.63	8.37	7.91	7.47	7.26	7.32	ID
12/17/21	Renew	25.0	2	7.28	7.43	7.93	7.84	8.07	8.16	7.38	ID
12/18/21	96 Hr.	23.3	2	8.00	8.36	8.01	7.51	7.65	8.32	8.00	ID
12/18/21	Renew	25.0	3	7.44	8.19	7.79	8.16	8.13	7.89	7.68	ID
12/19/21	120 Hr.	22.6	3	8.04	8.03	7.80	8.55	8.02	8.40	7.95	AM
12/19/21	Renew	22.4	3	7.80	8.08	8.14	8.16	8.14	8.08	8.06	AM
12/20/21	144 Hr.	22.5	3	7.86	8.37	8.13	8.17	8.60	7.81	7.70	AM
12/20/21	Renew	22.5	3	7.90	8.05	8.24	8.14	7.92	8.17	8.08	AM
12/21/21	168 Hr.	22.4	3	7.92	7.76	7.80	7.47	7.80	7.86	7.08	ID

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 33473

Test Date: December 14, 2021

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
12/14/21	1	7.59	7.13	48	58	762	<0.01	N/A	ID
12/16/21	2	7.51	7.28	80	84	914	<0.01	N/A	ID
12/18/21	3	7.59	8.52	64	76	745	<0.01	N/A	ID

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
12/14/21	RS1	8.02	7.88	52	36	198	<0.01	N/A	ID
12/16/21	RS2	8.19	8.19	52	46	208	<0.01	N/A	ID
12/18/21	RS3	8.23	8.19	52	44	212	<0.01	N/A	ID

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	22.000	30.000	24.900
2	28% Effluent	10	21.000	30.000	25.000
3	37% Effluent	10	22.000	28.000	25.000
4	50% Effluent	10	22.000	28.000	24.600
5	66% Effluent	10	23.000	27.000	25.100
6	88% Effluent	10	22.000	28.000	25.200

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	5.433	2.331	0.737	9.36
2	28% Effluent	8.667	2.944	0.931	11.78
3	37% Effluent	2.889	1.700	0.537	6.80
4	50% Effluent	4.489	2.119	0.670	8.61
5	66% Effluent	1.878	1.370	0.433	5.46
6	88% Effluent	3.956	1.989	0.629	7.89

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	5	13	26	12	4

Calculated Chi-Square goodness of fit test statistic = 1.2494
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 5.81

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	2.133	0.427	0.094
Within (Error)	54	245.800	4.552	
Total	59	247.933		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Transformed Mean	Mean	T Stat	Sig
			Calculated In Original Units		
1	Control	24.900	24.900		
2	28% Effluent	25.000	25.000	-0.105	
3	37% Effluent	25.000	25.000	-0.105	
4	50% Effluent	24.600	24.600	0.314	
5	66% Effluent	25.100	25.100	-0.210	
6	88% Effluent	25.200	25.200	-0.314	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum Diff	% of Control	Difference from Control
			(In Orig. Units)		
1	Control	10			
2	28% Effluent	10	2.204	8.9	-0.100
3	37% Effluent	10	2.204	8.9	-0.100
4	50% Effluent	10	2.204	8.9	0.300
5	66% Effluent	10	2.204	8.9	-0.200
6	88% Effluent	10	2.204	8.9	-0.300

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION
DAILY RAW DATA TABLE
PAGE 1 OF 2

CLIENT Tyler - Westside
OUTFALL 001
LAB ID # 33473

START DATE/TIME 12-14-21 TG 1400
END DATE/TIME 12-21-21 MH 1400

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
12/15	A	A	A	A	A	A	A	A	A	A	TG	1400
12/16	A	A	A	A	A	A	A	A	A	A	MH	1300
12/17	A	A	A	A	A	A	A	A	A	A	MH	1030
12/18	4	3	5	3	2	2	2	5	4	3	TG	1415
12/19	8	10	8	9	7	6	8	6	7	9	TG	1430
12/20	A	A	A	A	A	A	A	A	A	A	MH	1100
12/21	13	14	13	13	12	13	12	12	12	14	MH	1400
	25	27	26	25	21	21	22	23	23	26		

\bar{x} # Young w/o Dead = 23.9 CV% = 9.14
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
12/15	A	A	A	A	A	A	A	A	A	A	TG	1400
12/16	A	A	A	A	A	A	A	A	A	A	MH	1300
12/17	A	A	A	A	A	A	A	A	A	A	MH	1030
12/18	3	4	5	5	2	2	3	5	4	3	TG	1415
12/19	10	6	8	11	9	9	7	10	7	6	TG	1430
12/20	A	A	A	A	A	A	A	A	A	A	MH	1100
12/21	12	14	13	14	14	12	13	12	13	13	MH	1400
	25	24	26	30	25	23	23	27	24	22		

\bar{x} # Young w/o Dead = 24.9 CV% = 9.36
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
12/15	A	A	A	A	A	A	A	A	A	A	TG	1400
12/16	A	A	A	A	A	A	A	A	A	A	MH	1300
12/17	A	A	A	A	A	A	A	A	A	A	MH	1030
12/18	5	2	5	3	2	4	3	3	4	3	TG	1415
12/19	10	7	11	9	11	8	10	7	6	6	TG	1430
12/20	A	A	A	A	A	A	A	A	A	A	MH	1100
12/21	14	12	14	14	13	12	13	13	13	13	MH	1400
	29	21	30	26	26	24	26	23	23	22		

\bar{x} # Young w/o Dead = 25.0 CV% = 11.78
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
12/15	A	A	A	A	A	A	A	A	A	A	TG	1400
12/16	A	A	A	A	A	A	A	A	A	A	MH	1300
12/17	A	A	A	A	A	A	A	A	A	A	MH	1030
12/18	4	3	5	3	2	3	5	4	4	3	TG	1415
12/19	8	10	6	8	11	9	7	10	7	7	TG	1430
12/20	A	A	A	A	A	A	A	A	A	A	MH	1100
12/21	13	12	13	13	14	12	14	14	14	12	MH	1400
	25	25	24	24	27	24	26	28	25	22		

\bar{x} # Young w/o Dead = 25.0 CV% = 6.80
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

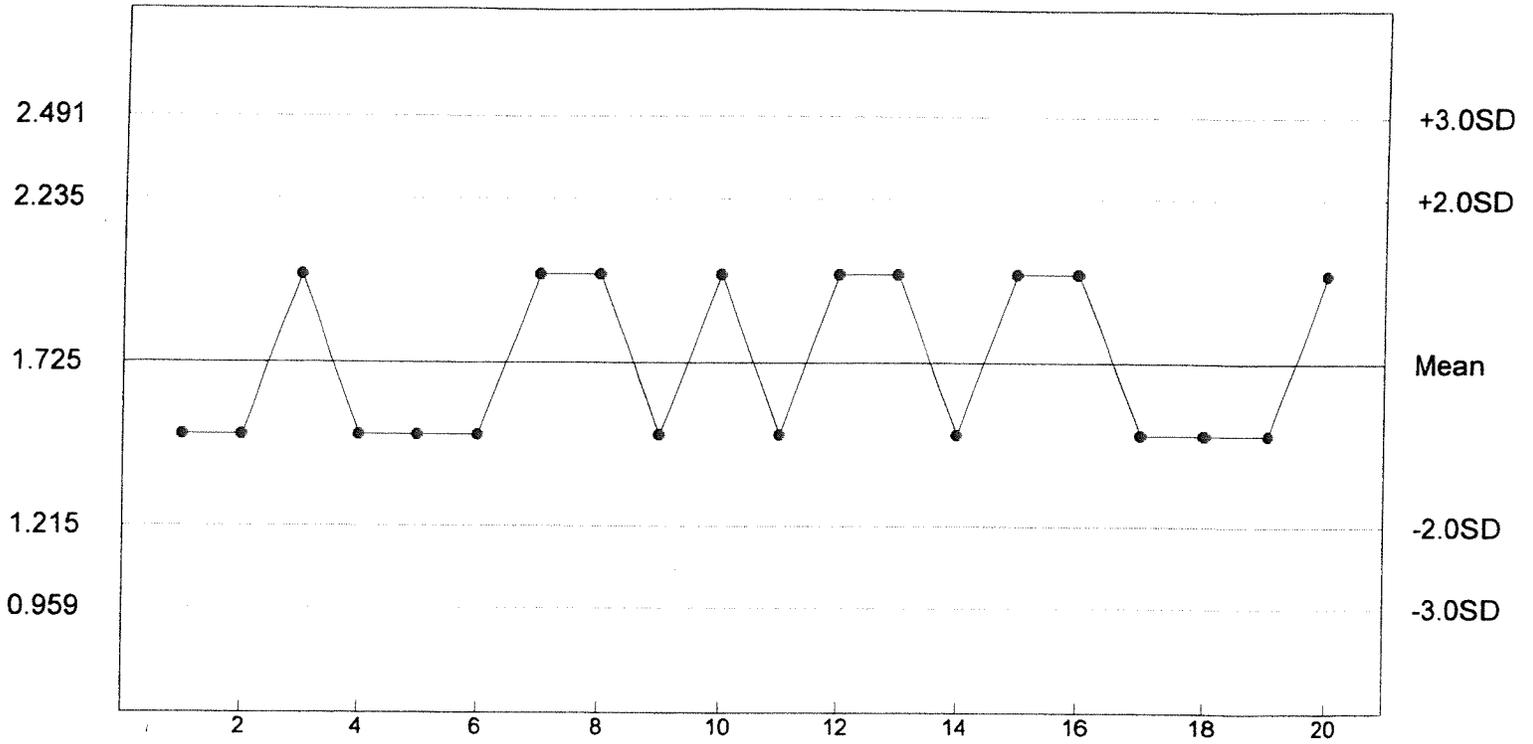
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 12
 TEST DATE: 12/01/21 - 12/08/21
 1630 Hrs - 1630 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	1
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.5 g/L	2.0 g/L	1.5 g/L	1.0 g/L

Reference Tox Sodium Chloride g/L

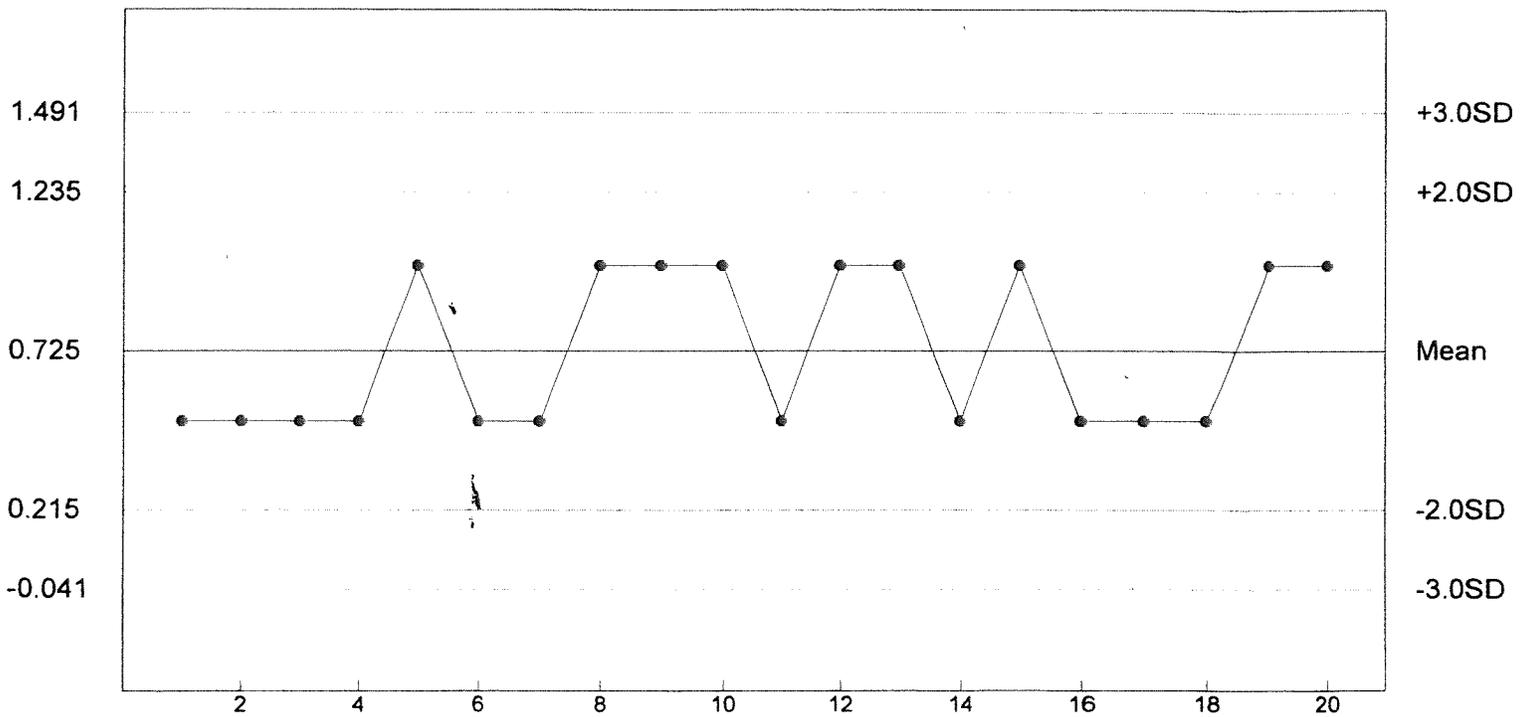
C. dubia Survival - NOEC



n= 20 Mean= 1.725 SD= 0.255 CV= 14.79% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.725 SD= 0.255 CV= 35.20% Min= 0.500 Max= 1.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33473 PROJECT NAME Tyler Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. Eff	W.S. Personnel	12/2/21 10AM	12/2/21 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.O.T.	12/13/21	8am	1

TYPE OF TEST 7day 24hr Gerio PIF
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 12/13/21 TIME: 1600 RECEIVED BY AT THIS DATE/TIME: Rancey Samott 12/13/21 1600

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rancey Samott DATE: 12/13/21 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 1.1 °C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33473 PROJECT NAME Tyler-Westside PERMIT# TRADES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF.	W.S. Personnel	12/15/21 10am	12/15/21 8pm	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. P.S.	P.O.T.	12/15/21	8pm	1

TYPE OF TEST 7 day 24hr Cerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 12/15/21 TIME: 1500 RECEIVED BY AT THIS DATE/TIME: [Signature] 12/15/21 1500
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: [Signature] DATE: 12/15/21 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 11.2°C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33473 PROJECT NAME Tyler - Westside PERMIT# TROES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP-P-FF	W.S. Pennington	12/16/21 10am	12/17/21 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.O.T.	12/17/21	8am	1

TYPE OF TEST Zday 24hr Zerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 12/17/21 TIME: 1900 RECEIVED BY AT THIS DATE/TIME: [Signature] 12/17/21 1900
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 12/17/21 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 3.4° Del

FACILITY: City of Tyler - Westside WWTF

TPDES #: 10653-001

TABLE 1 (SHEET 1 OF 2)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

			DATE	TIME		DATE	TIME
Dates and Times Composites Collected	No. 1	FROM:	<u>12/12/21</u>	<u>1000</u>	TO:	<u>12/13/21</u>	<u>0800</u>
	No. 2	FROM:	<u>12/14/21</u>	<u>1000</u>	TO:	<u>12/15/21</u>	<u>0800</u>
	No. 3	FROM:	<u>12/16/21</u>	<u>1000</u>	TO:	<u>12/17/21</u>	<u>0800</u>

Test initiated: 1400 12/14/21 date

Dilution water used: X Receiving water _____ Synthetic Dilution water _____

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

REP	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
A	25	29	25	22	25	25
B	24	21	25	27	25	27
C	26	30	24	28	23	22
D	30	26	24	22	27	28
E	25	26	27	24	23	25
F	23	24	24	25	26	25
G	23	26	26	25	25	27
H	27	23	28	22	25	22
I	24	23	25	26	27	25
J	22	22	22	25	25	26
Surviv. Mean	24.9	25.0	25.0	24.6	25.1	25.2
Total Mean	24.9	25.0	25.0	24.6	25.1	25.2
CV%*	9.36	11.78	6.80	8.61	5.46	7.89
PMSD	8.9					

* coefficient of variation = standard deviation x 100/mean (calculation based on young of the surviving females)
Designate males (M), and dead females (D-x), along with number of neonates (x) released prior to death.

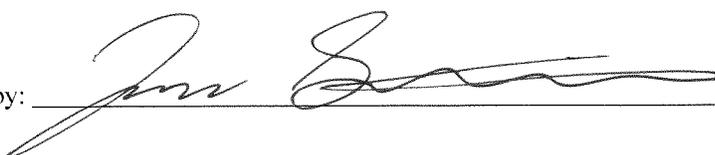
Reviewed by:  Huther & Associates

TABLE 1 (SHEET 2 OF 2)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less ($p=0.05$) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

Reviewed by: 



CITY OF TYLER- WESTSIDE WWTF
TPDES PERMIT NUMBER 10653-001
BIOMONITORING REPORTING
TEST DATE: 12/14/21
FOR NET DMR

I. Ceriodaphnia dubia

Table with 2 columns: Question/Parameter and Response. Contains 6 rows of data for Ceriodaphnia dubia tests.

II. Pimephales promelas

Table with 2 columns: Question/Parameter and Response. Contains 12 rows of data for Pimephales promelas tests.

22415 Retest Number 1 (For 9: Third column param. NODI pulldown menu, highlight "9") 9

22416 Retest Number 2 (For 9: Third column param. NODI pulldown menu, highlight "9") 9

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects; therefore the value is not quantifiable (Q).

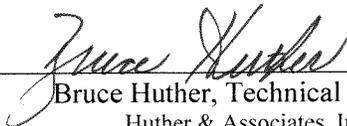
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

March 16, 2021

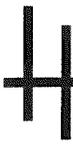
Reviewed by:



Bruce Huther, Technical Director
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client	City of Tyler	Sample	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	32522
Permit No.	TPDES 10653-001	Begin Date	March 16, 2021

Results: **Pass** *Daphnia pulex* and *Pimephales promelas* survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was picked up by Huther & Associates on March 15, 2021. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using *Daphnia pulex* and a static acute 24-hour toxicity screen test using *Pimephales promelas* (*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012*).

The effluent sample was analyzed for residual chlorine (Standard Methods, 23rd Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour *D. pulex* toxicity test was initiated at 1640 hours, March 16, 2021. The 24-hour *P. promelas* toxicity test was initiated at 1535 hours, March 16, 2021. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The *D. pulex* test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The *P. promelas* test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The *D. pulex* test was initiated with less than 24-hour-old organisms while the *P. promelas* test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The *D. pulex* test ended at 1640 hours, March 17, 2021. The *P. promelas* test ended at 1535 hours, March 17, 2021. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	03/15/21
LAB ID #	32522	DATE RECEIVED	03/15/21
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	03/16/21 1640
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	03/17/21 1640
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	T. Geiger

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24 Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
03/16/21	Start	1	8.09	7.07	8.20	8.64	LM
03/17/21	24 Hr.	1	7.59	7.45	8.50	8.38	LM

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	1	7.07	8.64	92	60	807	<0.01	N/A	TN
03/16/21	Control	8.09	8.20	100	62	368	-	-	MH

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	03/15/21
LAB ID #	32522	DATE RECEIVED	03/15/21
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	03/16/21 1535
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/17/21 1535
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
03/16/21	Start	1	8.09	7.07	8.20	8.64	LM
03/17/21	24 Hr.	1	7.57	7.27	8.00	7.61	LM

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
03/16/21	1	7.07	8.64	92	60	807	<0.01	N/A	TN
03/16/21	Control	8.09	8.20	100	62	368	-	-	MH

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler-Westside

PROJECT NUMBER: 32522

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
60A	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	3-16-21					3-17-21				
TECHNICIAN	TG					TG				

24-HOUR *PIMEPHALES PROMELAS* SURVIVAL

CLIENT: Tyler-Westside

PROJECT #: 32522

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
CON	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	3-16-21 1535					3-17-21 1535				
TECHNICIAN	Jc					Jc				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*

CHEMICAL: Sodium Chloride

DURATION: 48-Hours

TEST NUMBER: 3

TEST DATE: 3/03/21 - 3/05/21
1630 - 1630

STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	0
2.0	20	0
2.5	20	1
3.0	20	3
4.0	20	19
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
3.31 g/L	3.11 g/L	3.54 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*

CHEMICAL: Copper Nitrate

DURATION: 48-Hours

TEST NUMBER: 3

TEST DATE: 3/03/21 - 3/05/21
1500 Hrs - 1500 Hrs

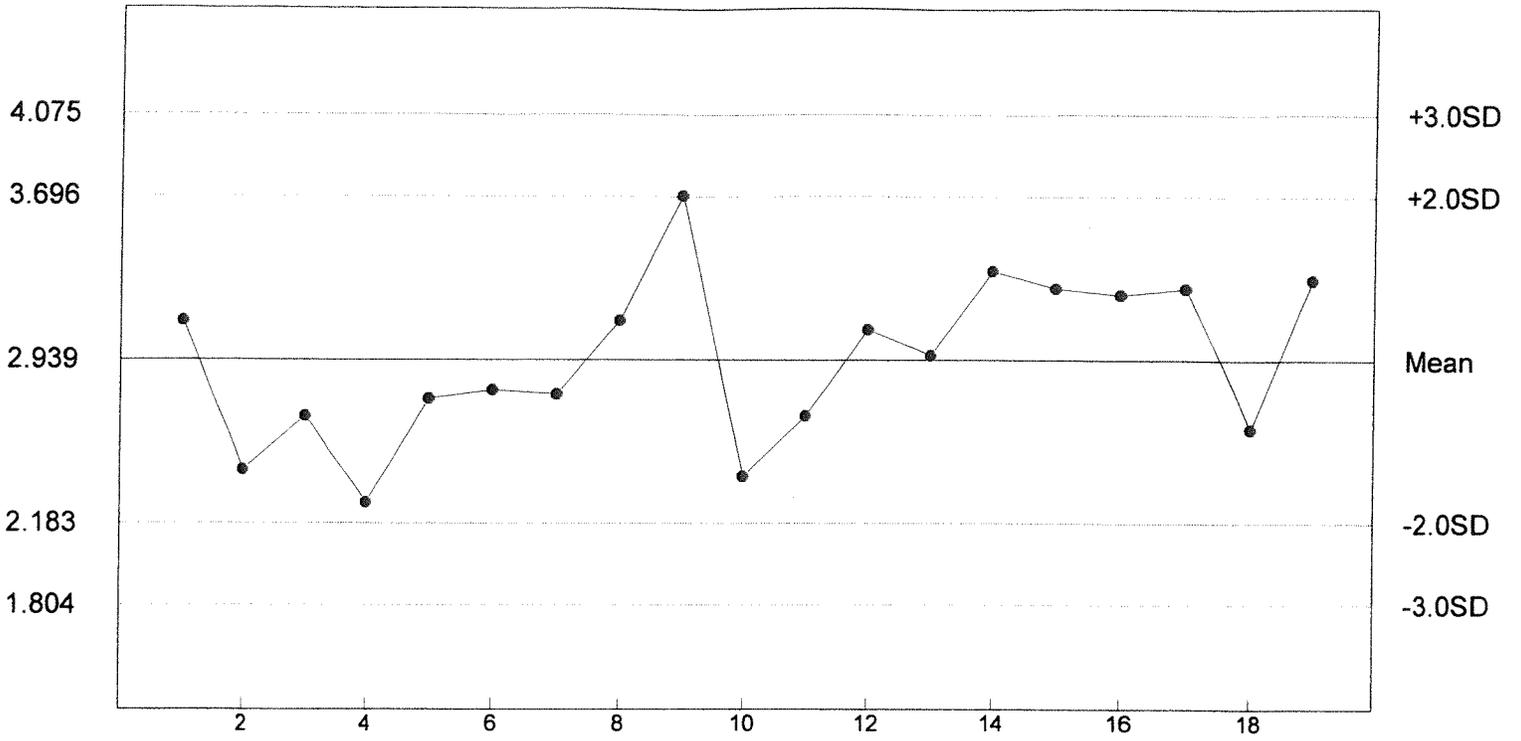
STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	0
200	40	5
400	40	17
800	40	37

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
405.37 ug/L	350.99 ug/L	471.03 ug/L

Ref. Toxicant Sodium chloride g/L

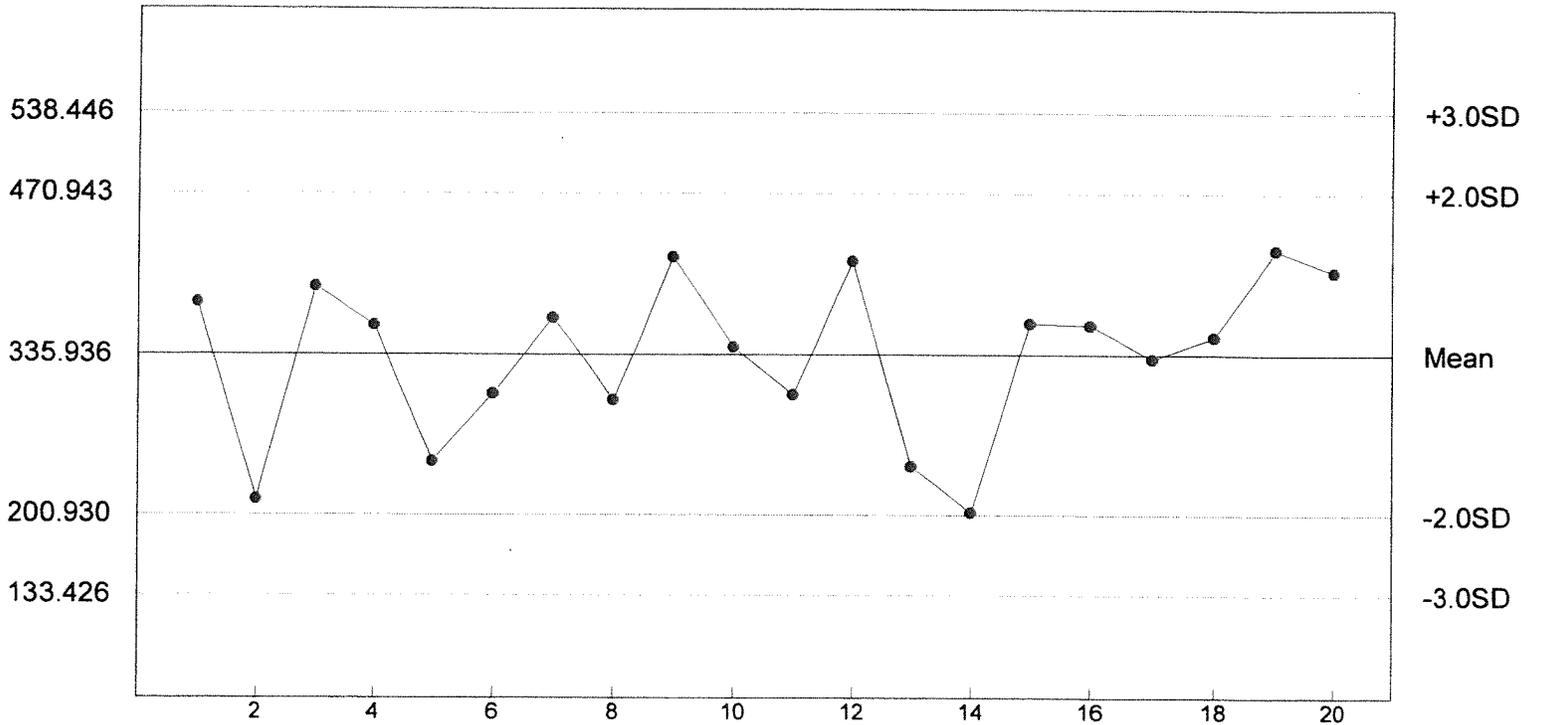
Daphnia pulex LC50



n= 19 Mean= 2.939 SD= 0.378 CV= 12.87% Min= 2.280 Max= 3.700

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 335.936 SD= 67.503 CV= 20.09% Min= 203.290 Max= 423.730

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 32522 PROJECT NAME Tyler-Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite * Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSP EFF.	W.S. BISSONNET	3/14/21 10AM	3/15/21 8AM	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
WSP R.S.	P.D.T.	3/15/21	8AM	1

TYPE OF TEST 7 Day 24hr CCF P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 3/15/21 TIME: 0800 RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: [Signature] DATE: 3/15/21 TIME: 1900 SAMPLE TEMP. @ RECEIPT: 2.52ei

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)
 DAPHNIA PULEX SURVIVAL

Dates and Times
 Composite Collected FROM: 03/14/21 1000 TO: 03/15/21 0800

Test Initiated: 1640 03/16/21 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times Composite Collected Date Time Date Time
 FROM: 03/14/21 1000 TO: 03/15/21 0800

Test Initiated: 1535 03/16/21 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

December 14, 2021

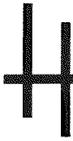
Reviewed by: _____



Josh Strange, QA/QC Officer
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client.....	City of Tyler	Sample.....	Outfall 001
Facility.....	Westside WWTF	Laboratory I.D.....	33473
Permit No.	TPDES 10653-001	Begin Date	December 14, 2021

Results: **Pass** *Daphnia pulex* and *Pimephales promelas* survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was picked up by Huther & Associates on December 13, 2021. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using *Daphnia pulex* and a static acute 24-hour toxicity screen test using *Pimephales promelas* (*Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012*).

The effluent sample was analyzed for residual chlorine (Standard Methods, 23rd Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour *D. pulex* toxicity test was initiated at 1600 hours, December 14, 2021. The 24-hour *P. promelas* toxicity test was initiated at 1610 hours, December 14, 2021. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The *D. pulex* test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The *P. promelas* test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The *D. pulex* test was initiated with less than 24-hour-old organisms while the *P. promelas* test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The *D. pulex* test ended at 1600 hours, December 15, 2021. The *P. promelas* test ended at 1610 hours, December 15, 2021. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	12/13/21
LAB ID #	33473	DATE RECEIVED	12/13/21
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	12/14/21 1600
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	12/15/21 1600
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
CONTROL WATER	Laboratory	TECHNICIAN	T. Geiger

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
12/14/21	Start	1	7.60	7.59	7.90	7.13	ID
12/15/21	24 Hr.	1	8.35	8.12	7.28	7.09	ID

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
12/14/21	1	7.59	7.13	48	58	762	<0.01	N/A	ID
12/14/21	Control	7.60	7.90	96	60	328	-	-	TG

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	12/13/21
LAB ID #	33473	DATE RECEIVED	12/13/21
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	12/14/21 1610
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	12/15/21 1610
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
12/14/21	Start	1	7.60	7.59	7.90	7.13	ID
12/15/21	24 Hr.	1	8.29	7.93	7.17	8.04	ID

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
12/14/21	1	7.59	7.13	48	58	762	<0.01	N/A	ID
12/14/21	Control	7.60	7.90	96	60	328	-	-	TG

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler - Westside

PROJECT NUMBER: 33473

CONC.	NUMBER ORGANISMS, 0 HRS					NUMBER ORGANISMS, 24 HRS				
	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	12-14-21 1600					12-15-21 1600				
TECHNICIAN	TG					TG				

Huther and Associates, Inc.

environmental toxicologists, biologists, consultants

24-HOUR PIMEPHALES PROMELAS SURVIVAL

CLIENT: Tyler - Westside

PROJECT #: 33473

NUMBER ORGANISMS,
0 HRS

NUMBER ORGANISMS,
24 HRS

CONC.	A	B	C	D	E	A	B	C	D	E
con	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	12-14-21					12-15-21				
TECHNICIAN	JC					JC				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*
 CHEMICAL: Sodium Chloride
 DURATION: 48-Hours
 TEST NUMBER: 12
 TEST DATE: 12/01/21 - 12/03/21
 1500 - 1500
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	0
2.0	20	0
2.5	20	2
3.0	20	12
4.0	20	20
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.95 g/L	2.78 g/L	3.12 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

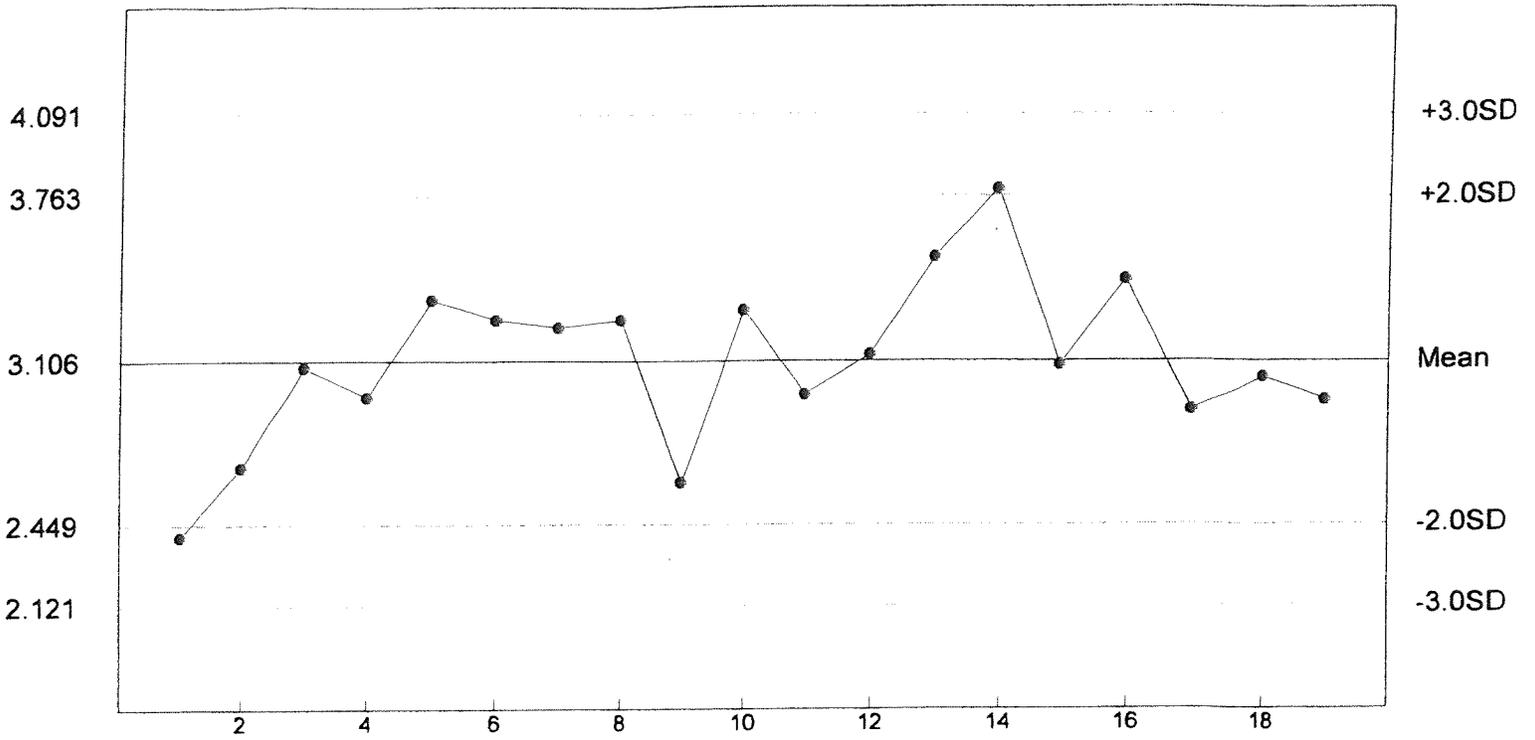
SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 48-Hours
 TEST NUMBER: 12
 TEST DATE: 12/01/21 -12/03/21
 1550 Hrs - 1550 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	2
200	40	6
400	40	18
800	40	40

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
342.24 ug/L	293.82 ug/L	398.64 ug/L

Ref. Toxicant Sodium chloride g/L

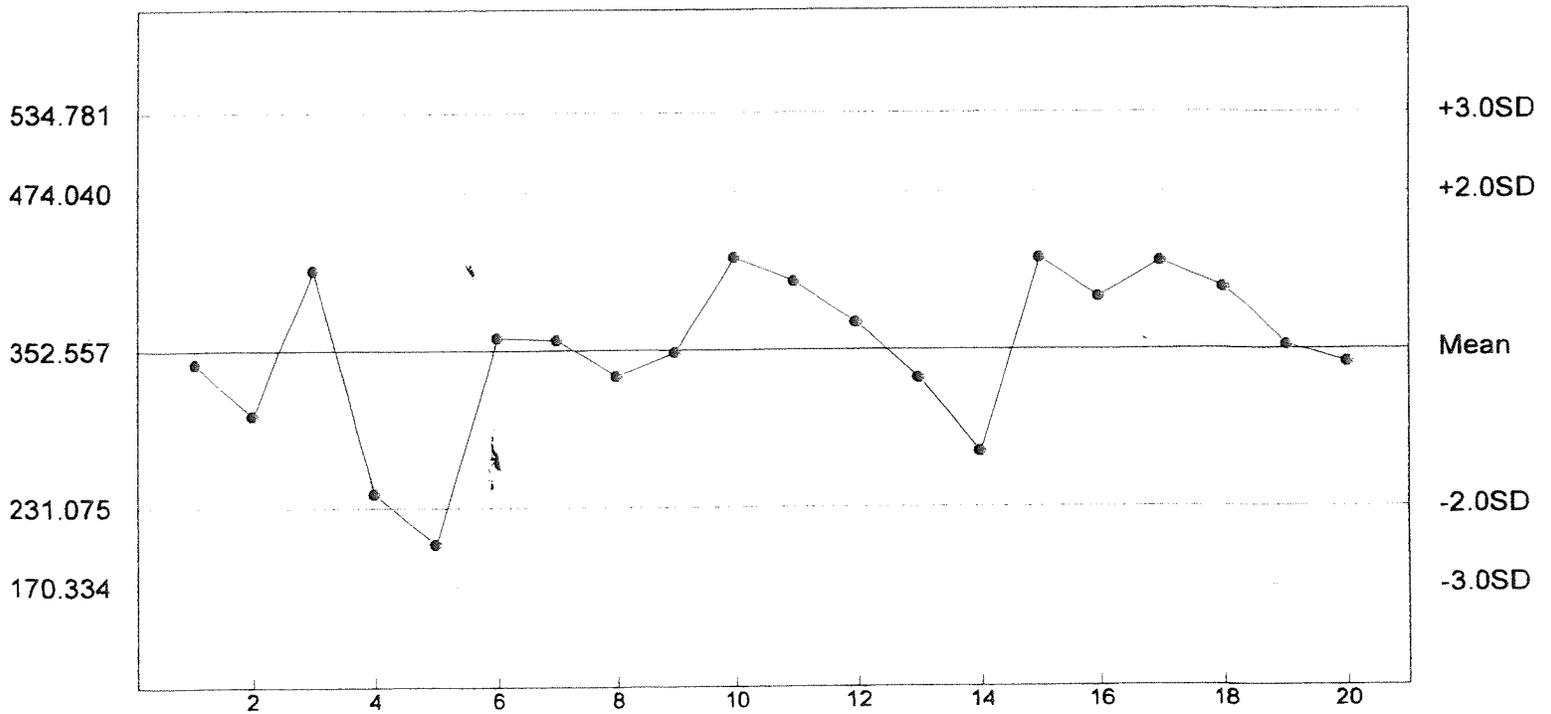
Daphnia pulex LC50



n= 19 Mean= 3.106 SD= 0.328 CV= 10.57% Min= 2.400 Max= 3.790

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 352.557 SD= 60.741 CV= 17.23% Min= 203.290 Max= 423.730

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 33473 PROJECT NAME Tyler Westside PERMIT# TPDES 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF	W.S. Personal	12/12/21 10AM	12/13/21 8AM	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.O.T.	12/13/21	8AM	1

TYPE OF TEST 7 day 24hr Gerio P/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 12/13/21 TIME: 1600 RECEIVED BY AT THIS DATE/TIME: Rancey Samott 12/13/21 1600
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: _____ Greyhound _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rancey Samott DATE: 12/13/21 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 1.1 °C

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)

DAPHNIA PULEX SURVIVAL

Dates and Times Composite Collected
 FROM: 12/12/21 1000 TO: 12/13/21 0800

Test Initiated: 1600 12/14/21 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times
 Composite Collected FROM: 12/12/21 1000 TO: 12/13/21 0800

Test Initiated: 1610 12/14/21 date

PERCENT SURVIVAL

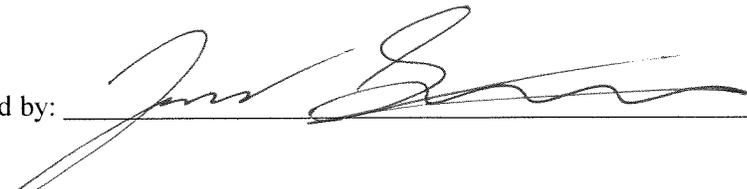
REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  _____ Huther & Associates

**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

24-Hour Acute Biomonitoring Report
TPDES Permit Number 10653-001

Daphnia pulex
Pimephales promelas

February 25, 2020

Reviewed by:



Josh Strange, QA/QC Officer
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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24-HOUR ACUTE TOXICITY TEST REPORT

Client City of Tyler Sample..... Outfall 001
Facility Westside WWTF Laboratory I.D. 31179
Permit No..... TPDES 10653-001 Begin Date February 25, 2020

Results: Pass Daphnia pulex and Pimephales promelas survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from the City of Tyler, Westside WWTF was picked up by Huthur & Associates on February 24, 2020. The effluent sample was manually collected and composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity screen test using Daphnia pulex and a static acute 24-hour toxicity screen test using Pimephales promelas (Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012).

The effluent sample was analyzed for residual chlorine (Standard Methods, 23rd Edition, 4500-C1 D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water temperature, hardness, alkalinity, conductivity, pH and dissolved oxygen data were analyzed and recorded.

TEST SETUP
Daphnia pulex
Pimephales promelas

The 24-hour D. pulex toxicity test was initiated at 1605 hours, February 25, 2020. The 24-hour P. promelas toxicity test was initiated at 1610 hours, February 25, 2020. One concentration (100% effluent) and a synthetic laboratory water control were prepared for testing. The D. pulex test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of test solution. The P. promelas test was conducted using 300 mL distilled water rinsed plastic beakers containing 250 mL of test solution. The D. pulex test was initiated with less than 24-hour-old organisms while the P. promelas test was initiated with less than 14-day-old organisms. Eight organisms were added to each of the five replicate beakers per concentration.

The D. pulex test ended at 1605 hours, February 26, 2020. The P. promelas test ended at 1610 hours, February 26, 2020. There was 100% survival in the control. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in TPDES Permit Number 10653-001 for the City of Tyler, Westside WWTF, Outfall 001 passed for this testing period.

24-Hour *Daphnia pulex* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	02/24/20
LAB ID #	31179	DATE RECEIVED	02/24/20
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	02/25/20 1605
TEST ORGANISM	<i>Daphnia pulex</i>	END DATE/TIME	02/26/20 1605
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. candl.
CONTROL WATER	Laboratory	TECHNICIAN	M. Homer

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24 Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
02/25/20	Start	1	7.96	7.24	8.04	8.21	SD
02/26/20	24 Hr.	1	8.25	8.04	7.57	8.04	JS

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	1	7.24	8.21	136	58	701	<0.01	N/A	SD
02/25/20	Control	7.96	8.04	96	58	330	-	-	TG

¹ Measurements taken in 100% solution.

24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	10653-001	DATE COLLECTED	02/24/20
LAB ID #	31179	DATE RECEIVED	02/24/20
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	02/25/20 1610
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	02/26/20 1610
ORGANISM AGE	< 14-days	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. candl.
CONTROL WATER	Laboratory	TECHNICIAN	T. Geiger

SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Con	8	8	8	8	8	8	8	8	8	8	100.0
100%	8	8	8	8	8	8	8	8	8	8	100.0

WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
02/25/20	Start	1	7.96	7.24	8.04	8.21	SD
02/26/20	24 Hr.	1	8.28	7.82	7.22	7.17	JS

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/l. CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. µS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	1	7.24	8.21	136	58	701	<0.01	N/A	SD
02/25/20	Control	7.96	8.04	96	58	330	-	-	TG

¹ Measurements taken in 100% solution.

**APPENDIX A:
RAW DATA**

24-HOUR DAPHNIA PULEX SURVIVAL

CLIENT: Tyler - Westside

PROJECT NUMBER: 31179

NUMBER ORGANISMS,
0 HRS

NUMBER ORGANISMS,
24 HRS

CONC.	A	B	C	D	E	A	B	C	D	E
60	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	2-25-20 1605					2-26-20 1605				
TECHNICIAN	MH					MH				

24-HOUR PIMEPHALES FROMELAS SURVIVAL

CLIENT: Tyler-Westside

PROJECT #: 31179

NUMBER ORGANISMS,
0 HRS

NUMBER ORGANISMS,
24 HRS

CONC.	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8
100	8	8	8	8	8	8	8	8	8	8
DATE/TIME	2-25-20 1610					2-26-20 1610				
TECHNICIAN	TG					TG				

**APPENDIX B:
REFERENCE TOXICANTS**

ACUTE REFERENCE TOXICANT TEST RESULTS

SPECIES: *Daphnia pulex*
 CHEMICAL: Sodium Chloride
 DURATION: 48-Hours
 TEST NUMBER: 2
 TEST DATE: 02/07/20 - 02/09/20
 1125 - 1125
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
1.0	20	1
2.0	20	3
2.5	20	8
3.0	20	17
4.0	20	20
5.0	20	20

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.46 g/L	2.20 g/L	2.74 g/L

ACUTE REFERENCE TOXICANT TEST RESULTS

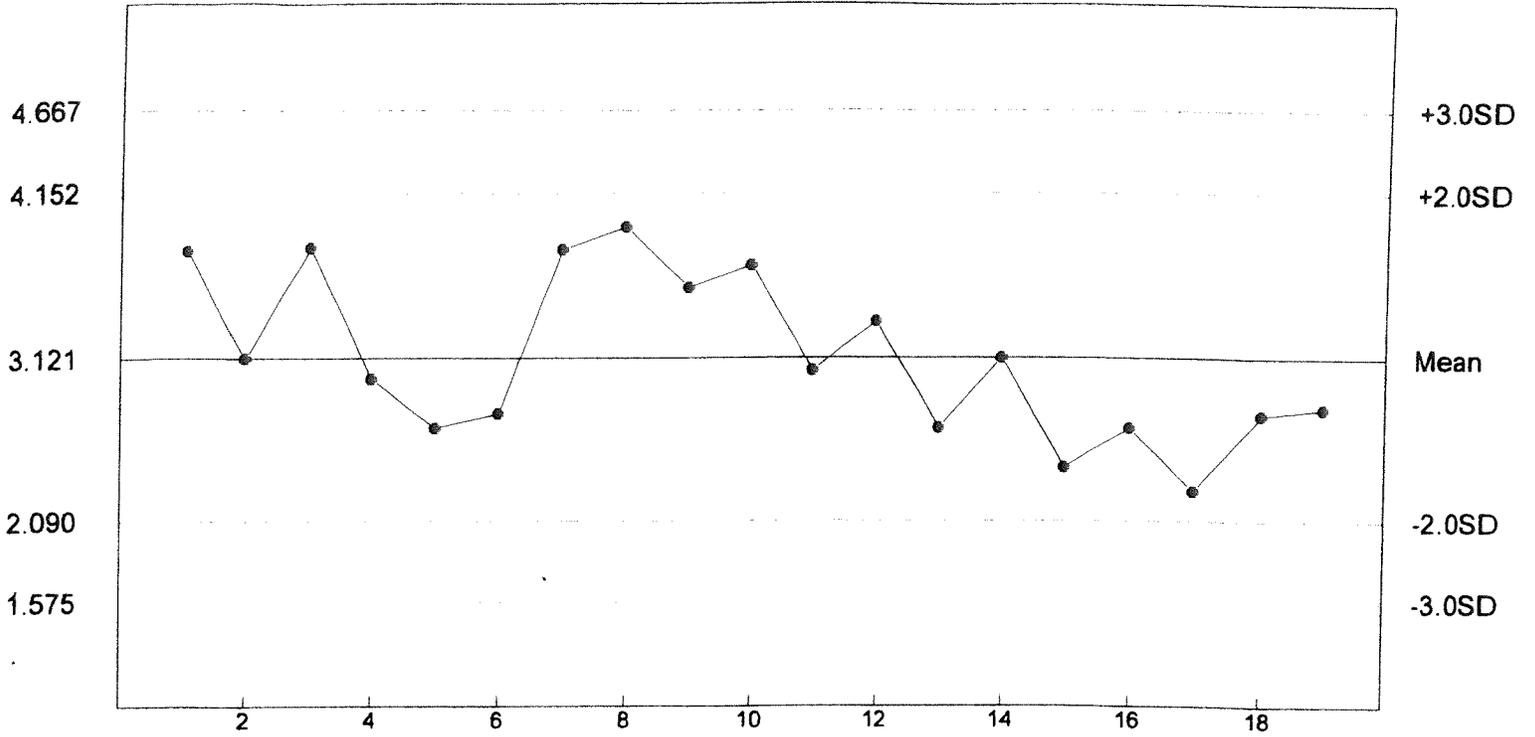
SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 48-Hours
 TEST NUMBER: 2
 TEST DATE: 02/05/20 - 02/07/20
 1620 Hrs - 1620 Hrs
 STATISTICAL METHOD: Spearman-Karber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	3
200	40	3
400	40	19
800	40	40

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
366.80 ug/L	310.98 ug/L	420.47 ug/L

Ref. Toxicant Sodium chloride g/L

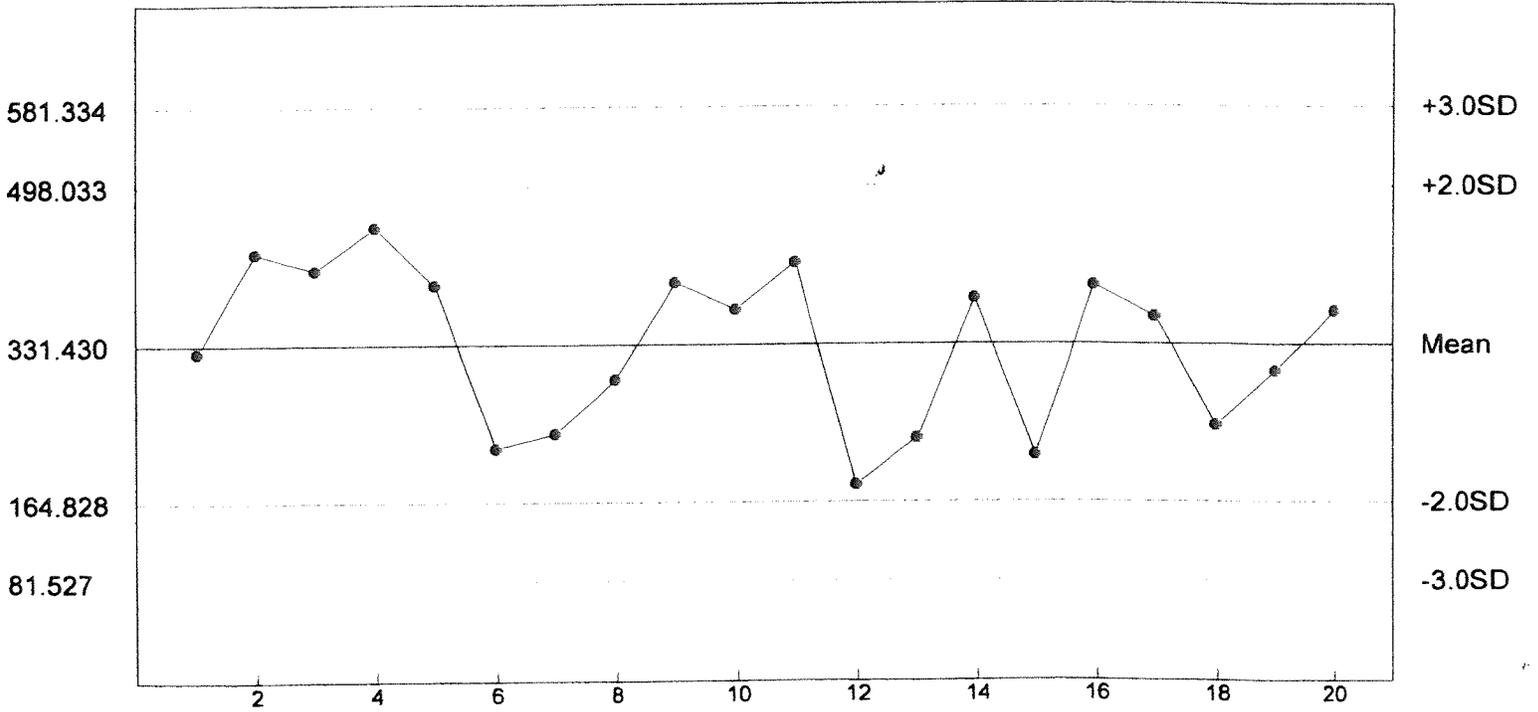
Daphnia pulex LC50



n= 19 Mean= 3.121 SD= 0.515 CV= 16.52% Min= 2.280 Max= 3.940

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 331.430 SD= 83.301 CV= 25.13% Min= 183.400 Max= 455.520

**APPENDIX C:
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31179 PROJECT NAME Tyler - West Side PERMIT# W600 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. FF	P. ST	2/23/2020 12:00 PM	2/24/2020 8:00 AM	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. RS	P. ST	2/24/2020	8 AM	1

7 DAY 24hr
 TYPE OF TEST CIE PIF

NAME OF RECEIVING WATER Black Fork Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 2/24/20 TIME: 1000 RECEIVED BY AT THIS DATE/TIME: Rance Samth 2/24/20

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rance Samth DATE: 2/24/20 TIME: 1200 SAMPLE TEMP. @ RECEIPT: 0.7°C

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 1 OF 2)
 DAPHNIA PULEX SURVIVAL

Dates and Times Composite Collected
 FROM: 02/23/20 1000 TO: 02/24/20 0800

Test Initiated: 1605 02/25/20 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*D. pulex*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  Huther & Associates

Permittee City of Tyler, Westside WWTF
 TPDES Permit Number 10653-001
 Outfall 001

TABLE 2 (SHEET 2 OF 2)

PIMEPHALES PROMELAS SURVIVAL

Dates and Times Composite Collected Date Time Date Time
 FROM: 02/23/20 1000 TO: 02/24/20 0800

Test Initiated: 1610 02/25/20 date

PERCENT SURVIVAL

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

Reviewed by:  _____ Huther & Associates

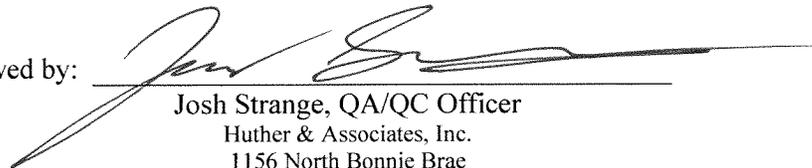
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

February 25, 2020

Reviewed by:



Josh Strange, QA/QC Officer
Huther & Associates, Inc.
1156 North Bonnie Brae
Denton, Texas 76201
(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client	City of Tyler	Sample	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	31179
Permit No.	TPDES 10653-001	Begin Date	February 25, 2020

Results: **Pass** *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up at the facility by Huthur & Associates on February 24, February 26, and February 28, 2020. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. Two toxicity tests were requested: a seven-day *Ceriodaphnia dubia* survival and reproduction test (EPA Method 1002.0), and a seven-day *Pimephales promelas* larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP
Ceriodaphnia dubia



The seven-day *Ceriodaphnia dubia* survival and reproduction test was initiated at 1500 hours, February 25, 2020. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). *C. dubia* neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL *Selenastrum capricornutum* and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test organisms and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. The test ended at 1500 hours, March 3, 2020. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

REPRODUCTION
Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 8.7%**
NOEC: 88% Effluent

TEST SETUP
Pimephales promelas



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1510 hours, February 25, 2020. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight organisms per beaker, five beakers per concentration). *P. promelas* larvae were less than 24-hours-old at test initiation and originated from a minimum of three in-house spawnings. Fresh solutions were prepared and renewed daily. Larvae in each test chamber were fed <24-hour-old *Artemia* (brine shrimp) three times per day. The test proceeded for seven days during which survival and water quality data were collected daily.

A true control of five replicate beakers of eight larvae each in receiving water was conducted currently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1510 hours, March 5, 2020. Survival and growth (weight) data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Pimephales promelas

There was 100% survival to *P. promelas* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

GROWTH
Pimephales promelas

P. promelas growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 7.9%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates

7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	02/24/20 02/26/20 02/27/20
LAB ID #	31179	DATE RECEIVED	02/24/20 02/26/20 02/27/20
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	02/25/20 1500
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	03/03/20 1500
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	M. Horner

SURVIVAL & REPRODUCTION SUMMARY

Performance Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	5	3	4	4	3	3	4	3	4	2
	5	3	4	4	3	3	4	3	4	2
03/01/20	A	A	A	A	A	A	A	A	A	A
	5	3	4	4	3	3	4	3	4	2
03/02/20	6	7	6	6	8	10	9	9	9	10
	11	10	10	10	11	13	13	12	13	12
03/03/20	13	12	12	13	13	12	12	12	14	14
	24	22	22	23	24	25	25	24	27	26
x# Young 24.2 C.V. 6.69% x%Survival 100% C.V. 0.00%										

True Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	4	5	5	2	3	5	2	4	5	3
	4	5	5	2	3	5	2	4	5	3
03/01/20	A	A	A	A	A	A	A	A	A	A
	4	5	5	2	3	5	2	4	5	3
03/02/20	7	10	8	6	9	9	8	8	7	6
	11	15	13	8	12	14	10	12	12	9
03/03/20	13	14	14	13	14	14	13	14	12	14
	24	29	27	21	26	28	23	26	24	23
x# Young 25.1 C.V. 10.02% x%Survival 100% C.V. 0.00%										

28%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	4	5	5	3	3	3	5	4	2	5
	4	5	5	3	3	3	5	4	2	5
03/01/20	A	A	A	A	A	A	A	A	A	A
	4	5	5	3	3	3	5	4	2	5
03/02/20	10	6	9	6	11	8	6	7	10	6
	14	11	14	9	14	11	11	11	12	11
03/03/20	14	13	12	12	12	14	14	13	14	13
	28	24	26	21	26	25	25	24	26	24
x# Young 24.9 C.V. 7.44% x%Survival 100% C.V. 0.00%										

37%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	2	4	4	5	4	5	3	4	2	5
	2	4	4	5	4	5	3	4	2	5
03/01/20	A	A	A	A	A	A	A	A	A	A
	2	4	4	5	4	5	3	4	2	5
03/02/20	6	7	9	8	10	9	10	6	7	6
	8	11	13	13	14	14	13	10	9	11
03/03/20	13	14	14	12	14	14	13	13	13	14
	21	25	27	25	28	28	26	23	22	25
x# Young 25.0 C.V. 9.61% x%Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A
4

 alive today
 total young to date

ex 2:

5
12

 alive, 5 young today
 total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31179

Test Date: February 25, 2020

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	4	2	2	4	3	4	5	2	3	3
	A	A	A	A	A	A	A	A	A	A
03/01/20	4	2	2	4	3	4	5	2	3	3
	10	7	8	8	9	6	7	9	8	7
03/02/20	14	9	10	12	12	10	12	11	11	10
	12	13	12	14	13	12	13	13	12	13
03/03/20	26	22	22	26	25	22	25	24	23	23
x # Young 23.8 C.V. 6.80% x%Survival 100% C.V. 0.00%										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	3	5	4	4	2	3	2	2	5	5
	A	A	A	A	A	A	A	A	A	A
03/01/20	3	5	4	4	2	3	2	2	5	5
	9	6	10	9	8	6	6	9	9	7
03/02/20	12	11	14	13	10	9	8	11	14	12
	13	12	13	14	12	14	14	12	14	13
03/03/20	25	23	27	27	22	23	22	23	28	25
x # Young 24.5 C.V. 9.08% x%Survival 100% C.V. 0.00%										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
02/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/27/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/28/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
02/29/20	4	4	2	4	3	3	4	5	4	5
	A	A	A	A	A	A	A	A	A	A
03/01/20	4	4	2	4	3	3	4	5	4	5
	10	6	7	9	9	6	11	9	7	9
03/02/20	14	10	9	13	12	9	15	14	11	14
	13	13	14	14	13	14	13	12	12	12
03/03/20	27	23	23	27	25	23	28	26	23	26
x # Young 25.1 C.V. 7.85% x%Survival 100% C.V. 0.00%										

where: A = Alive ex 1:

A
4

 alive today total young to date

5 = Alive, 5 young ex 2:

5
12

 alive, 5 young today total young to date

D = Dead

D5 = 5 Young, Female died

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31179

Test Date: February 25, 2020

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
02/25/20	Start	25.0	1	8.10	8.02	7.81	7.65	7.58	7.50	7.47	SD
02/26/20	24 Hr.	24.5	1	8.20	8.11	7.83	7.74	7.68	7.63	7.61	JS
02/26/20	Renew	24.3	1	7.94	7.78	7.68	7.54	7.48	7.40	7.37	JS
02/27/20	48 Hr.	24.0	1	8.04	7.88	7.80	7.78	7.77	7.79	7.79	SD
02/27/20	Renew	25.0	2	8.45	8.40	8.02	7.80	7.69	7.59	7.50	SD
02/28/20	72 Hr.	24.0	2	8.42	8.25	7.88	7.72	7.62	7.55	7.49	LM
02/28/20	Renew	24.0	2	8.11	7.93	7.70	7.58	7.54	7.48	7.44	LM
02/29/20	96 Hr.	24.1	2	7.78	7.70	7.67	7.69	7.71	7.74	7.81	SD
02/29/20	Renew	25.0	3	8.26	8.14	7.95	7.71	7.61	7.51	7.38	SD
03/01/20	120 Hr.	24.2	3	7.79	7.71	7.67	7.68	7.68	7.71	7.72	LM
03/01/20	Renew	24.2	3	8.30	7.83	7.68	7.47	7.43	7.39	7.37	LM
03/02/20	144 Hr.	24.3	3	8.01	7.84	7.72	7.65	7.60	7.57	7.56	LM
03/02/20	Renew	24.4	3	8.39	8.17	7.93	7.70	7.63	7.58	7.55	LM
03/03/20	168 Hr.	24.3	3	8.39	8.22	8.05	7.99	7.97	7.97	7.98	SD

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	28%	37%	50%	66%		88%
02/25/20	Start	25.0	1	7.81	7.89	7.75	7.84	7.80	7.80	7.84	SD
02/26/20	24 Hr.	24.5	1	7.73	7.63	8.18	8.50	7.71	7.68	8.05	JS
02/26/20	Renew	24.3	1	7.83	8.17	8.32	8.48	8.22	8.15	8.28	JS
02/27/20	48 Hr.	24.0	1	7.93	7.98	7.44	7.81	8.63	8.47	7.95	SD
02/27/20	Renew	25.0	2	7.60	8.50	7.69	7.70	7.74	7.66	8.52	SD
02/28/20	72 Hr.	24.0	2	8.42	7.69	8.49	8.57	8.54	8.51	8.51	LM
02/28/20	Renew	24.0	2	8.59	8.62	8.64	7.88	8.37	8.49	8.48	LM
02/29/20	96 Hr.	24.1	2	8.35	8.36	8.41	8.42	8.47	8.40	8.44	SD
02/29/20	Renew	25.0	3	7.03	7.84	7.91	8.01	8.18	7.98	7.81	SD
03/01/20	120 Hr.	24.2	3	8.49	8.35	8.45	8.48	8.51	8.56	8.65	LM
03/01/20	Renew	24.2	3	8.10	8.16	8.18	8.24	8.32	8.31	8.32	LM
03/02/20	144 Hr.	24.3	3	8.32	8.42	8.48	8.13	8.17	8.48	8.36	LM
03/02/20	Renew	24.4	3	8.29	8.33	8.26	8.23	8.15	8.16	8.15	LM
03/03/20	168 Hr.	24.3	3	7.66	7.93	7.95	8.18	8.15	8.16	8.35	SD

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31179

Test Date: February 25, 2020

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	1	7.24	8.21	136	58	701	<0.01	N/A	SD
02/27/20	2	7.74	7.62	132	80	863	<0.01	N/A	SD
02/29/20	3	7.17	7.42	96	76	962	<0.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	RS1	8.02	7.89	128	36	254	<0.01	N/A	SD
02/27/20	RS2	8.40	8.50	112	42	286	<0.01	N/A	SD
02/29/20	RS3	8.14	7.84	68	42	226	<0.01	N/A	SD

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	21.000	29.000	25.100
2	28% Effluent	10	21.000	28.000	24.900
3	37% Effluent	10	21.000	28.000	25.000
4	50% Effluent	10	22.000	26.000	23.800
5	66% Effluent	10	22.000	28.000	24.500
6	88% Effluent	10	23.000	28.000	25.100

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	6.322	2.514	0.795	10.02
2	28% Effluent	3.433	1.853	0.586	7.44
3	37% Effluent	5.778	2.404	0.760	9.61
4	50% Effluent	2.622	1.619	0.512	6.80
5	66% Effluent	4.944	2.224	0.703	9.08
6	88% Effluent	3.878	1.969	0.623	7.85

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	3	16	21	17	3

Calculated Chi-Square goodness of fit test statistic = 1.2529
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.33

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	12.933	2.587	0.575
Within (Error)	54	242.800	4.496	
Total	59	255.733		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	25.100	25.100		
2	28% Effluent	24.900	24.900	0.211	
3	37% Effluent	25.000	25.000	0.105	
4	50% Effluent	23.800	23.800	1.371	
5	66% Effluent	24.500	24.500	0.633	
6	88% Effluent	25.100	25.100	0.000	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
 No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	28% Effluent	10	2.191	8.7	0.200
3	37% Effluent	10	2.191	8.7	0.100
4	50% Effluent	10	2.191	8.7	1.300
5	66% Effluent	10	2.191	8.7	0.600
6	88% Effluent	10	2.191	8.7	0.000

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	02/24/20 02/26/20 02/27/20
LAB ID #	31179	DATE RECEIVED	02/24/20 02/26/20 02/27/20
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	02/25/20 1510
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/03/20 1510
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	02/26/20					02/27/20					02/28/20					02/29/20					03/01/20				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	

Conc.	03/02/20					03/03/20					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4520	0.4300	0.4650	0.4790	0.4300	0.4512	4.78
TCON	0.4650	0.4490	0.4250	0.4810	0.4310	0.4502	5.18
28%	0.4770	0.4850	0.4390	0.4720	0.4530	0.4652	4.04
37%	0.4590	0.4260	0.4850	0.4610	0.4370	0.4536	5.06
50%	0.4450	0.4790	0.4500	0.4850	0.4290	0.4576	5.18
66%	0.4870	0.4450	0.4170	0.4820	0.4860	0.4634	6.74
88%	0.4790	0.4820	0.4650	0.4290	0.4750	0.4660	4.65

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31179

Test Date: February 25, 2020

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
02/25/20	Start	25.0	1	8.10	8.02	7.81	7.65	7.58	7.50	7.47	SD
02/26/20	24 Hr.	24.5	1	8.25	8.01	7.86	7.79	7.69	7.63	7.61	JS
02/26/20	Renew	24.3	1	7.94	7.78	7.68	7.54	7.48	7.40	7.37	JS
02/27/20	48 Hr.	24.0	1	7.46	7.53	7.42	7.37	7.34	7.35	7.30	SD
02/27/20	Renew	25.0	2	8.45	8.40	8.02	7.80	7.69	7.59	7.50	SD
02/28/20	72 Hr.	24.0	2	7.64	7.53	7.42	7.42	7.37	7.42	7.40	LM
02/28/20	Renew	24.0	2	8.11	7.93	7.70	7.58	7.54	7.48	7.44	LM
02/29/20	96 Hr.	24.1	2	7.76	7.75	7.61	7.56	7.54	7.52	7.56	SD
02/29/20	Renew	25.0	3	8.26	8.14	7.95	7.71	7.61	7.51	7.38	SD
03/01/20	120 Hr.	24.3	3	7.71	7.55	7.45	7.45	7.47	7.50	7.44	LM
03/01/20	Renew	24.2	3	8.30	7.83	7.68	7.47	7.43	7.39	7.37	LM
03/02/20	144 Hr.	24.4	3	7.67	7.46	7.44	7.42	7.49	7.45	7.38	LM
03/02/20	Renew	24.4	3	8.39	8.17	7.93	7.70	7.63	7.58	7.55	LM
03/03/20	168 Hr.	24.3	3	7.55	7.58	7.53	7.53	7.49	7.44	7.42	SD

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
02/25/20	Start	25.0	1	7.81	7.89	7.75	7.84	7.80	7.80	7.84	SD
02/26/20	24 Hr.	24.5	1	7.78	8.05	8.14	8.50	8.10	8.00	7.79	JS
02/26/20	Renew	24.3	1	7.83	8.17	8.32	8.48	8.22	8.15	8.28	JS
02/27/20	48 Hr.	24.0	1	7.76	8.46	8.45	7.71	7.84	7.88	7.20	SD
02/27/20	Renew	25.0	2	7.60	8.50	7.69	7.70	7.74	7.66	8.52	SD
02/28/20	72 Hr.	24.0	2	7.96	8.01	8.46	8.05	8.65	7.93	7.92	LM
02/28/20	Renew	24.0	2	8.59	8.62	8.64	7.88	8.37	8.49	8.48	LM
02/29/20	96 Hr.	24.1	2	7.49	7.73	8.21	8.27	7.92	8.01	8.32	SD
02/29/20	Renew	25.0	3	7.03	7.84	7.91	8.01	8.18	7.98	7.81	SD
03/01/20	120 Hr.	24.3	3	7.99	8.03	7.77	8.02	8.09	7.73	7.76	LM
03/01/20	Renew	24.2	3	8.10	8.16	8.18	8.24	8.32	8.31	8.32	LM
03/02/20	144 Hr.	24.4	3	8.41	8.25	8.21	8.31	8.32	8.40	8.46	LM
03/02/20	Renew	24.4	3	8.29	8.33	8.26	8.23	8.15	8.16	8.15	LM
03/03/20	168 Hr.	24.3	3	7.24	7.64	7.18	7.34	7.16	7.31	7.41	SD

Huther and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31179

Test Date: February 25, 2020

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	1	7.24	8.21	136	58	701	<0.01	N/A	SD
02/27/20	2	7.74	7.62	132	80	863	<0.01	N/A	SD
02/29/20	3	7.17	7.42	96	76	962	<0.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
02/25/20	RS1	8.02	7.89	128	36	254	<0.01	N/A	SD
02/27/20	RS2	8.40	8.50	112	42	286	<0.01	N/A	SD
02/29/20	RS3	8.14	7.84	68	42	226	<0.01	N/A	SD

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.425	0.481	0.450
2	28% Effluent	5	0.439	0.485	0.465
3	37% Effluent	5	0.426	0.485	0.454
4	50% Effluent	5	0.429	0.485	0.458
5	66% Effluent	5	0.417	0.487	0.463
6	88% Effluent	5	0.429	0.482	0.466

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.023	0.010	5.18
2	28% Effluent	0.000	0.019	0.008	4.04
3	37% Effluent	0.001	0.023	0.010	5.06
4	50% Effluent	0.001	0.024	0.011	5.18
5	66% Effluent	0.001	0.031	0.014	6.74
6	88% Effluent	0.000	0.022	0.010	4.65

Shapiro - Wilk's Test For Normality

D = 0.014

W = 0.945

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data **Pass** normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 1.08

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.001	0.000	0.376
Within (Error)	24	0.014	0.001	
Total	29	0.015		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Transformed Mean	Mean		T Stat	Sig
			Calculated In	Original Units		
1	Control	0.450	0.450			
2	28% Effluent	0.465	0.465		-0.992	
3	37% Effluent	0.454	0.454		-0.225	
4	50% Effluent	0.458	0.458		-0.489	
5	66% Effluent	0.463	0.463		-0.873	
6	88% Effluent	0.466	0.466		-1.045	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum Diff (In Orig. Units)	Sig % of Control	Difference from Control
1	Control	5			
2	28% Effluent	5	0.036	7.9	-0.015
3	37% Effluent	5	0.036	7.9	-0.003
4	50% Effluent	5	0.036	7.9	-0.007
5	66% Effluent	5	0.036	7.9	-0.013
6	88% Effluent	5	0.036	7.9	-0.016

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHnia DUBIA SURVIVAL & REPRODUCTION
DAILY RAW DATA TABLE
PAGE 1 OF 2

CLIENT Tyler - Westside
OUTFALL 001
LAB ID # 31179

START DATE/TIME 2-25-20 MH 1500
END DATE/TIME 3-3-20 MH 1500

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
2/26	A	A	A	A	A	A	A	A	A	A	MH	1500
2/27	A	A	A	A	A	A	A	A	A	A		
2/28	A	A	A	A	A	A	A	A	A	A	JS	1430
2/29	5	3	4	4	3	3	4	3	4	2		
3/1	A	A	A	A	A	A	A	A	A	A	MH	1045
3/2	6	7	6	6	8	10	9	9	9	10		
3/3	13	12	12	13	13	12	12	12	14	14	MH	1500
	24	22	22	23	24	25	25	24	27	26		

\bar{x} # Young w/o Dead = 24.2 CV% = 6.69
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100.0 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
2/26	A	A	A	A	A	A	A	A	A	A	MH	1500
2/27	A	A	A	A	A	A	A	A	A	A		
2/28	A	A	A	A	A	A	A	A	A	A	JS	1430
2/29	4	5	5	2	3	5	2	4	5	3		
3/1	A	A	A	A	A	A	A	A	A	A	MH	1045
3/2	7	10	8	6	9	9	8	8	7	6		
3/3	13	14	14	13	14	14	13	14	12	14	MH	1500
	24	29	27	21	26	28	23	26	24	23		

\bar{x} # Young w/o Dead = 25.1 CV% = 10.02
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100.0 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
2/26	A	A	A	A	A	A	A	A	A	A	MH	1500
2/27	A	A	A	A	A	A	A	A	A	A		
2/28	A	A	A	A	A	A	A	A	A	A	JS	1430
2/29	4	5	5	3	3	3	5	4	2	5		
3/1	A	A	A	A	A	A	A	A	A	A	MH	1045
3/2	10	6	9	6	11	8	6	7	10	6		
3/3	14	13	12	12	12	14	14	13	14	13	MH	1500
	28	24	26	21	26	25	25	24	26	24		

\bar{x} # Young w/o Dead = 24.9 CV% = 7.44
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100.0 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
2/26	A	A	A	A	A	A	A	A	A	A	MH	1500
2/27	A	A	A	A	A	A	A	A	A	A		
2/28	A	A	A	A	A	A	A	A	A	A	JS	1430
2/29	2	4	4	5	4	5	3	4	2	5		
3/1	A	A	A	A	A	A	A	A	A	A	MH	1045
3/2	6	7	9	8	10	9	10	6	7	6		
3/3	13	14	14	12	14	14	13	13	13	14	MH	1500
	21	25	27	25	28	28	26	23	22	25		

\bar{x} # Young w/o Dead = 25.0 CV% = 9.61
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100.0 CV% = 0.00

**7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY Ther-Westside DATE/TIME STARTED 2-25-20 JK 1510

OUTFALL # 001 PROJECT # 3179 DATE/TIME ENDED 3-3-20 JK 1510

ORGANISM ID# PF0-20-055

Conc.	2-26-20 JK 1510					2-27-20 JK 1525					2-28-20 JK 1005					2-29-20 TG 1010					TG 1110				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Pear	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Tcon	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	3-2-20 JK 1135					3-3-20 JK 1510					Mean Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
Pear	8	8	8	8	8	8	8	8	8	8	100.0	0.00
Tcon	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88	8	8	8	8	8	8	8	8	8	8	100.0	0.00

Client / Facility Tyler-Westside
 Lab ID Number 31179
 Outfall Number 001
 Test Date 2-25-20

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃	Alkalinity mg/L CaCO ₃	Conduct. umhos/cm	Resid. Cl ₂ mg/L	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L	Analyst
2-25-20	1	7.24	8.21	136	58	701	20.01	N/A	SD
2-27-20	2	7.74	7.62	132	80	863	20.01	N/A	SD
2-29-20	3	7.17	7.42	96	76	962	20.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃	Alkalinity mg/L CaCO ₃	Conduct. umhos/cm	Resid. Cl ₂ mg/L	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L	Analyst
2-25-20	1	8.02	7.89	128	36	254	20.01	N/A	SD
2-27-20	2	8.40	8.50	112	42	286	20.01	N/A	SD
2-29-20	3	8.14	7.84	68	42	226	20.01	N/A	SD

Notes:

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

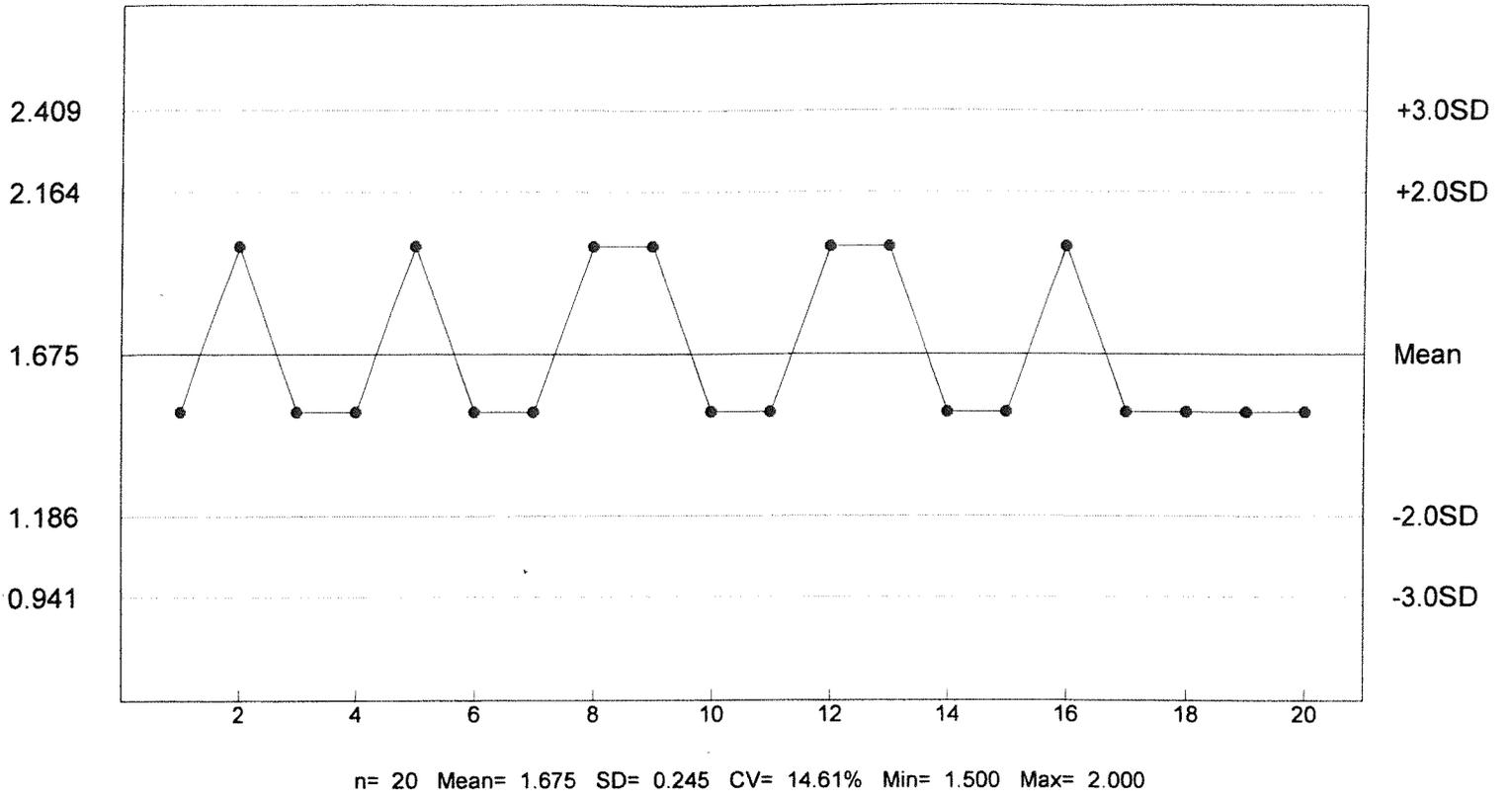
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 2
 TEST DATE: 02/05/20 - 02/12/20
 1630 Hrs - 1630 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	2
2.0	10	5
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.5 g/L	1.0 g/L

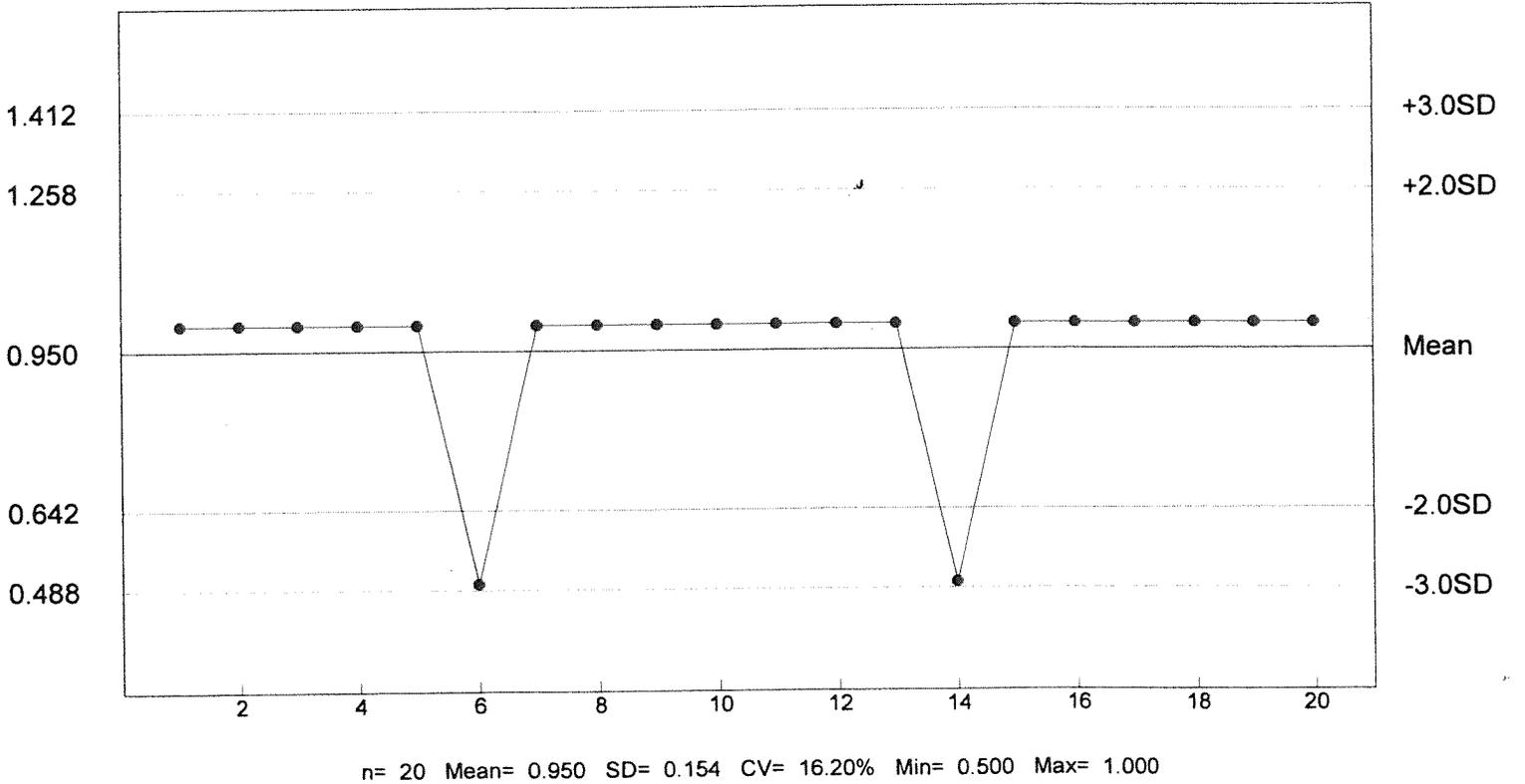
Reference Tox Sodium Chloride g/L

C. dubia Survival - NOEC



Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



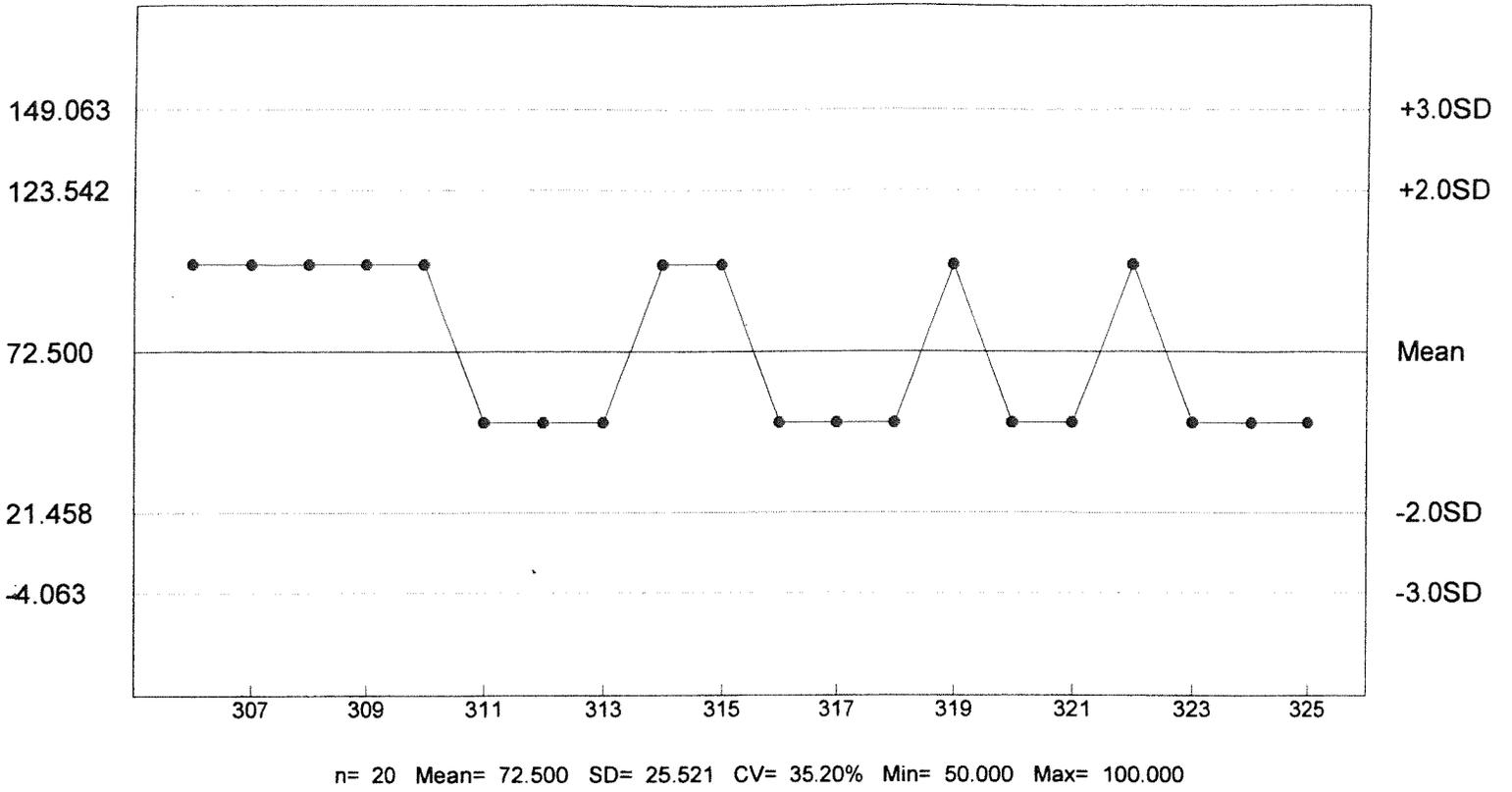
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 2
 TEST DATE: 02/05/20 - 02/12/20
 1130 Hrs - 1130 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

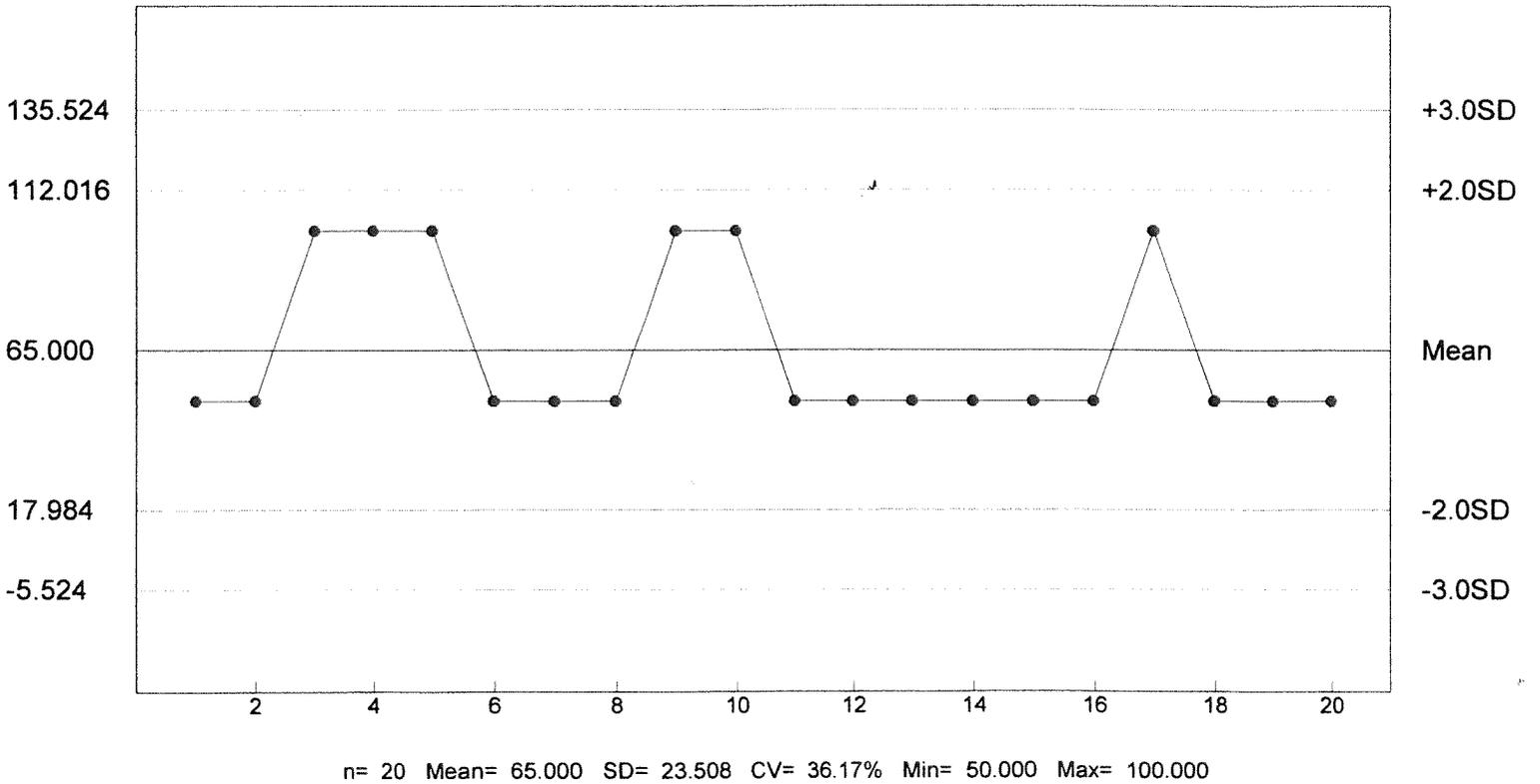
CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	10
200	40	14
400	40	40
800	40	40

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



**APPENDIX C
CHAIN OF CUSTODY SHEETS**

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31179 PROJECT NAME Tyler - West Side PERMIT# W000 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WSTP FFF	P. ST	2/23/2020 7:00 AM	2/24/2020 8:00 AM	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. RS	P. ST	2/24/2020	8 AM	1

TYPE OF TEST 7 Day C/F 24hr P/F

NAME OF RECEIVING WATER Black Fork Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 2/24/20 TIME: 1000 RECEIVED BY AT THIS DATE/TIME: [Signature] 2/24/20

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Ground Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 2/24/20 TIME: 1700 SAMPLE TEMP. @ RECEIPT: 0.7°C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31179 PROJECT NAME Tyler- West Side PERMIT# W000 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.P. EFF.	POT	8/25 10am 8/26 8:00am	8/26/2020 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	POT.	8/26/2020	8am	1

TYPE OF TEST 7 Day 24hr
CIF P/F

NAME OF RECEIVING WATER Black Fork Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 8/26/2020 TIME: 0730 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rancefanott DATE: 8/26/20 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 1.5°C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31179 PROJECT NAME Tyler - West Side PERMIT# W600 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite _____ Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P.	P.D.T.	2/26/2020 10AM 27 BH	2/29/2020 8AM 26 BH	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.D.T.	2/29/2020	8AM	1
		28 BH		
		2/29/2020	0800	
		28 BH		

TYPE OF TEST 7 Day C/F 24hr P/F

NAME OF RECEIVING WATER Black Folk Creek

DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 2/29/2020 TIME: 0800 RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: 28 BH TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 2/28/20 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 0.2 °C

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less ($p=0.05$) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

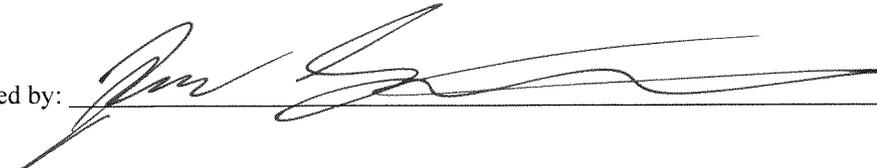
Reviewed by: 

TABLE 1 (SHEET 4 OF 4)
 BIOMONITORING REPORTING FORM
PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) _____ YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable



**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 02/25/20
 FOR NET DMR**

I. *Ceriodaphnia dubia*

	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	100%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	100%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q

II. *Pimephales promelas*

	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	100%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	100%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q

22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
---	---

22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
---	---

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).

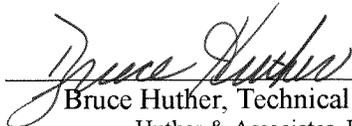
**CITY OF TYLER
WESTSIDE WWTF
OUTFALL 001**

Chronic Biomonitoring Report
Permit Number TPDES 10653-001

Ceriodaphnia dubia
Pimephales promelas

June 23, 2020

Reviewed by:



Bruce Huther, Technical Director

Huther & Associates, Inc.

1156 North Bonnie Brae

Denton, Texas 76201

(940) 387-1025, Fax: (940) 387-1036

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TOXICITY TEST REPORT - CHRONIC

Client	City of Tyler	Sample	Outfall 001
Facility	Westside WWTF	Laboratory I.D.	31570
Permit No.	TPDES 10653-001	Begin Date	June 23, 2020

Results: **Pass** *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth at the critical low flow concentration (88% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Tyler, Westside WWTF were picked up at the facility by Huther & Associates on June 22, June 24, and June 26, 2020. Effluent samples from Outfall 001 were manually collected and composited by facility personnel. Two toxicity tests were requested: a seven-day *Ceriodaphnia dubia* survival and reproduction test (EPA Method 1002.0), and a seven-day *Pimephales promelas* larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP
Ceriodaphnia dubia



The seven-day *Ceriodaphnia dubia* survival and reproduction test was initiated at 1445 hours, June 23, 2020. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). *C. dubia* neonates were less than 24-hours-old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL *Selenastrum capricornutum* and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test organisms and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. The test ended at 1445 hours, June 30, 2020. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

REPRODUCTION
Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 9.0%**
NOEC: 88% Effluent

TEST SETUP
Pimephales promelas



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1500 hours, June 23, 2020. Five concentrations were prepared (28%, 37%, 50%, 66% and 88% effluent) utilizing receiving water (Black Fork Creek) as dilution water. The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight organisms per beaker, five beakers per concentration). *P. promelas* larvae were less than 24-hours-old at test initiation and originated from a minimum of three in-house spawnings. Fresh solutions were prepared and renewed daily. Larvae in each test chamber were fed <24-hour-old *Artemia* (brine shrimp) three times per day. The test proceeded for seven days during which survival and water quality data were collected daily.

A true control of five replicate beakers of eight larvae each in receiving water was conducted currently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1500 hours, June 30, 2020. Survival and growth (weight) data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Pimephales promelas

There was 100% survival to *P. promelas* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

LOEC: Not Applicable
NOEC: 88% Effluent

GROWTH
Pimephales promelas

P. promelas growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 8.0%**
NOEC: 88% Effluent

SUMMARY

There were no statistically significant differences between the control and the critical low flow concentration (88% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 10653-001 for City of Tyler, Westside WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	06/22/20 06/24/20 06/26/20
LAB ID #	31570	DATE RECEIVED	06/22/20 06/24/20 06/26/20
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	06/23/20 1445
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	06/30/20 1445
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. cndI
DILUTION WATER	Black Fork Creek	TECHNICIAN	D. Kaiser

SURVIVAL & REPRODUCTION SUMMARY

Performance Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	4	3	3	3	5	3	4	4	5	3
	4	3	3	3	5	3	4	4	5	3
06/28/20	11	10	10	9	9	8	7	10	9	11
	15	13	13	12	14	11	11	14	14	14
06/29/20	A	A	A	A	A	A	A	A	A	A
	15	13	13	12	14	11	11	14	14	14
06/30/20	12	12	14	13	13	14	12	13	13	14
	27	25	27	25	27	25	23	27	27	28
x# Young		26.1				C.V. 5.84%				
x%Survival		100%				C.V. 0.00%				

True Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	3	2	4	4	5	4	3	3	5	4
	3	2	4	4	5	4	3	3	5	4
06/28/20	8	8	9	10	7	7	10	11	10	10
	11	10	13	14	12	11	13	14	15	14
06/29/20	A	A	A	A	A	A	A	A	A	A
	11	10	13	14	12	11	13	14	15	14
06/30/20	12	13	13	14	13	12	13	14	12	13
	23	23	26	28	25	23	26	28	27	27
x# Young		25.6				C.V. 7.86%				
x%Survival		100%				C.V. 0.00%				

28%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	3	2	2	3	3	3	4	3	4	3
	3	2	2	3	3	3	4	3	4	3
06/28/20	7	7	6	9	10	8	10	8	10	8
	10	9	8	12	13	11	14	11	14	11
06/29/20	A	A	A	A	A	A	A	A	A	A
	10	9	8	12	13	11	14	11	14	11
06/30/20	14	12	13	12	12	13	14	14	13	12
	24	21	21	24	25	24	28	25	27	23
x# Young		24.2				C.V. 9.30%				
x%Survival		100%				C.V. 0.00%				

37%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	3	3	2	4	5	3	2	4	5	3
	3	3	2	4	5	3	2	4	5	3
06/28/20	8	8	6	10	11	9	6	9	10	8
	11	11	8	14	16	12	8	13	15	11
06/29/20	A	A	A	A	A	A	A	A	A	A
	11	11	8	14	16	12	8	13	15	11
06/30/20	12	12	13	14	12	13	14	12	14	13
	23	23	21	28	28	25	22	25	29	24
x# Young		24.8				C.V. 11.05%				
x%Survival		100%				C.V. 0.00%				

where: A = Alive
5 = Alive, 5 young
D = Dead
D5 = 5 Young, Female died

ex 1:

A
4

 alive today
total young to date

ex 2:

5
12

 alive, 5 young today
total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31570

Test Date: June 23, 2020

50%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	3	2	2	4	4	3	4	3	3	3
	3	2	2	4	4	3	4	3	3	3
06/28/20	9	8	6	10	10	7	10	8	8	9
	12	10	8	14	14	10	14	11	11	12
06/29/20	A	A	A	A	A	A	A	A	A	A
	12	10	8	14	14	10	14	11	11	12
06/30/20	13	13	13	12	13	14	12	12	13	14
	25	23	21	26	27	24	26	23	24	26
x# Young 24.5 C.V. 7.51% x%Survival 100% C.V. 0.00%										

66%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	4	3	3	5	3	2	4	3	3	3
	4	3	3	5	3	2	4	3	3	3
06/28/20	9	11	8	10	7	6	10	7	7	7
	13	14	11	15	10	8	14	10	10	10
06/29/20	A	A	A	A	A	A	A	A	A	A
	13	14	11	15	10	8	14	10	10	10
06/30/20	12	14	13	13	14	12	13	12	12	13
	25	26	24	28	24	20	27	22	22	23
x# Young 24.3 C.V. 11.15% x%Survival 100% C.V. 0.00%										

88%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
06/24/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/25/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/26/20	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
06/27/20	3	2	2	2	3	4	4	3	3	3
	3	2	2	2	3	4	4	3	3	3
06/28/20	10	7	8	9	10	7	10	8	8	9
	13	9	10	11	13	11	14	11	11	12
06/29/20	A	A	A	A	A	A	A	A	A	A
	13	9	10	11	13	11	14	11	11	12
06/30/20	13	12	14	12	12	13	12	14	13	12
	26	21	24	23	25	24	26	25	24	24
x# Young 24.2 C.V. 6.10% x%Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A

 alive today

4

 total young to date

ex 2:

5

 alive, 5 young today

12

 total young to date

Huthier and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31570

Test Date: June 23, 2020

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/23/20	Start	25.0	1	7.96	7.87	7.59	7.53	7.51	7.52	7.52	SD
06/24/20	24 Hr.	25.9	1	8.09	7.96	7.79	7.81	7.82	7.86	7.88	LM
06/24/20	Renew	25.2	1	8.32	7.71	7.75	7.80	7.80	7.85	7.90	LM
06/25/20	48 Hr.	25.8	1	8.20	7.51	7.50	7.58	7.67	7.79	7.86	SD
06/25/20	Renew	25.0	2	8.16	7.93	7.41	7.35	7.33	7.35	7.38	SD
06/26/20	72 Hr.	25.9	2	8.55	8.15	8.07	8.10	8.12	8.18	8.23	LM
06/26/20	Renew	25.5	2	8.37	7.52	7.51	7.57	7.55	7.69	7.74	LM
06/27/20	96 Hr.	26.1	2	8.16	7.86	7.27	7.21	7.13	7.15	7.27	SD
06/27/20	Renew	25.0	3	8.42	8.06	7.40	7.24	7.17	7.16	7.31	SD
06/28/20	120 Hr.	26.1	3	8.35	7.51	7.34	7.40	7.44	7.51	7.58	LM
06/28/20	Renew	25.7	3	8.46	7.47	7.29	7.43	7.30	7.36	7.60	LM
06/29/20	144 Hr.	26.2	3	8.32	7.64	7.35	7.52	7.29	7.45	7.69	LM
06/29/20	Renew	25.7	3	8.35	7.45	7.21	7.47	7.20	7.38	7.66	LM
06/30/20	168 Hr.	26.0	3	8.24	7.91	7.78	7.78	7.82	7.87	7.87	SD

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution							Analyst
				PCON	TCON	28%	37%	50%	66%	88%	
06/23/20	Start	25.0	1	8.24	8.17	8.15	8.13	8.16	8.16	8.16	SD
06/24/20	24 Hr.	25.9	1	8.17	8.19	8.31	8.15	8.12	8.02	7.84	LM
06/24/20	Renew	25.2	1	7.58	8.13	8.07	8.12	8.02	8.02	7.28	LM
06/25/20	48 Hr.	25.8	1	8.08	8.06	8.06	8.06	8.05	8.03	8.03	SD
06/25/20	Renew	25.0	2	8.09	7.95	7.93	7.80	7.83	7.82	7.78	SD
06/26/20	72 Hr.	25.9	2	8.11	8.13	8.04	8.04	8.29	8.31	8.33	LM
06/26/20	Renew	25.5	2	7.93	7.98	7.89	7.94	7.80	7.80	7.85	LM
06/27/20	96 Hr.	26.1	2	8.28	8.20	8.00	8.17	8.15	8.02	7.76	SD
06/27/20	Renew	25.0	3	8.29	8.32	8.27	8.20	8.12	8.17	8.18	SD
06/28/20	120 Hr.	26.1	3	8.20	8.22	8.19	8.16	8.15	8.08	7.82	LM
06/28/20	Renew	25.7	3	8.13	8.15	8.14	8.06	8.00	8.00	7.94	LM
06/29/20	144 Hr.	26.2	3	8.00	8.00	8.00	8.01	7.99	8.02	8.02	LM
06/29/20	Renew	25.7	3	7.84	7.97	8.03	7.98	7.78	7.97	7.97	LM
06/30/20	168 Hr.	26.0	3	8.21	7.57	8.08	7.13	8.06	8.08	8.08	SD

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31570

Test Date: June 23, 2020

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/23/20	1	7.57	7.76	100	170	1081	<0.01	N/A	SD
06/25/20	2	7.67	7.89	92	142	1014	<0.01	N/A	SD
06/27/20	3	7.44	7.94	96	156	1057	<0.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/23/20	RS1	7.87	8.17	56	56	225	<0.01	N/A	SD
06/25/20	RS2	7.93	7.95	52	38	148	<0.01	N/A	SD
06/27/20	RS3	8.06	8.32	60	44	210	<0.01	N/A	SD

¹ Measurements taken in 100% solution.

CERIODAPHNIA DUBIA STATISTICAL ANALYSES
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	23.000	28.000	25.600
2	28% Effluent	10	21.000	28.000	24.200
3	37% Effluent	10	21.000	29.000	24.800
4	50% Effluent	10	21.000	27.000	24.500
5	66% Effluent	10	20.000	28.000	24.300
6	88% Effluent	10	21.000	26.000	24.200

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	4.044	2.011	0.636	7.86
2	28% Effluent	5.067	2.251	0.712	9.30
3	37% Effluent	7.511	2.741	0.867	11.05
4	50% Effluent	3.389	1.841	0.582	7.51
5	66% Effluent	7.344	2.710	0.857	11.15
6	88% Effluent	2.178	1.476	0.467	6.10

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	3	15	22	18	2

Calculated Chi-Square goodness of fit test statistic = 2.1607
 Table Chi-Square value (alpha = 0.01) = 13.277

Data **Pass** normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 4.60

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	14.600	2.920	0.593
Within (Error)	54	265.800	4.922	
Total	59	280.400		

Critical F value = 2.45 (0.05,5,40)
 Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Transformed Mean	Mean		T Stat	Sig
			Original Units	Calculated In		
1	Control	25.600		25.600		
2	28% Effluent	24.200		24.200	1.411	
3	37% Effluent	24.800		24.800	0.806	
4	50% Effluent	24.500		24.500	1.109	
5	66% Effluent	24.300		24.300	1.310	
6	88% Effluent	24.200		24.200	1.411	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)
No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum Sig		Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	28% Effluent	10	2.292	9.0	1.400
3	37% Effluent	10	2.292	9.0	0.800
4	50% Effluent	10	2.292	9.0	1.100
5	66% Effluent	10	2.292	9.0	1.300
6	88% Effluent	10	2.292	9.0	1.400

Huthur and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Tyler, Westside WWTF	SAMPLE TYPE	24 Hour Composite
TPDES #	10653-001	DATE COLLECTED	06/22/20 06/24/20 06/26/20
LAB ID #	31570	DATE RECEIVED	06/22/20 06/24/20 06/26/20
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	06/23/20 1500
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	06/30/20 1500
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Black Fork Creek	LIGHT INTENSITY	50-100 ft. candl.
DILUTION WATER	Black Fork Creek	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	06/24/20					06/25/20					06/26/20					06/27/20					06/28/20				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
PCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
66%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	06/29/20					06/30/20					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
66%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

MEAN DRY WEIGHT PER REP

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V.%
PCON	0.4590	0.4860	0.4720	0.4250	0.4730	0.4630	5.03
TCON	0.4820	0.4210	0.4360	0.4610	0.4210	0.4442	6.01
28%	0.4370	0.4890	0.4600	0.4730	0.4820	0.4682	4.39
37%	0.4560	0.4750	0.4810	0.4690	0.4880	0.4738	2.57
50%	0.4790	0.4650	0.4230	0.4710	0.4830	0.4642	5.18
66%	0.4650	0.4720	0.4860	0.4150	0.4790	0.4634	6.08
88%	0.4860	0.4210	0.4790	0.4670	0.4830	0.4672	5.74

Huthier and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31570

Test Date: June 23, 2020

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
06/23/20	Start	25.0	1	7.96	7.87	7.59	7.53	7.51	7.52	7.52	SD
06/24/20	24 Hr.	25.8	1	7.70	7.54	7.72	7.70	7.80	7.85	7.92	LM
06/24/20	Renew	25.2	1	8.32	7.71	7.75	7.80	7.80	7.85	7.90	LM
06/25/20	48 Hr.	25.8	1	7.48	7.54	7.50	7.58	7.68	7.74	7.77	SD
06/25/20	Renew	25.0	2	8.16	7.93	7.41	7.35	7.33	7.35	7.38	SD
06/26/20	72 Hr.	26.2	2	7.63	7.19	7.46	7.55	7.72	7.82	7.90	LM
06/26/20	Renew	25.5	2	8.37	7.52	7.51	7.57	7.55	7.69	7.74	LM
06/27/20	96 Hr.	26.2	2	7.43	7.47	7.36	7.54	7.57	7.70	7.80	SD
06/27/20	Renew	25.0	3	8.42	8.06	7.40	7.24	7.17	7.16	7.31	SD
06/28/20	120 Hr.	26.3	3	7.61	7.38	7.36	7.73	7.46	7.69	7.74	LM
06/28/20	Renew	25.7	3	8.46	7.47	7.29	7.43	7.30	7.36	7.60	LM
06/29/20	144 Hr.	26.3	3	7.93	7.51	7.25	7.54	7.35	7.39	7.52	LM
06/29/20	Renew	25.7	3	8.35	7.45	7.21	7.47	7.20	7.38	7.66	LM
06/30/20	168 Hr.	26.0	3	7.77	7.28	7.02	6.99	6.89	6.92	7.15	SD

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution					Analyst		
				PCON	TCON	28%	37%	50%		66%	88%
06/23/20	Start	25.0	1	8.24	8.17	8.15	8.13	8.16	8.16	8.16	SD
06/24/20	24 Hr.	25.8	1	8.25	8.29	8.31	8.22	7.80	7.20	7.82	LM
06/24/20	Renew	25.2	1	7.58	8.13	8.07	8.12	8.02	8.02	7.28	LM
06/25/20	48 Hr.	25.8	1	8.15	8.12	8.05	7.95	7.98	8.03	7.92	SD
06/25/20	Renew	25.0	2	8.09	7.95	7.93	7.80	7.83	7.82	7.78	SD
06/26/20	72 Hr.	26.2	2	7.98	8.03	8.00	8.00	8.01	8.03	8.00	LM
06/26/20	Renew	25.5	2	7.93	7.98	7.89	7.94	7.80	7.80	7.85	LM
06/27/20	96 Hr.	26.2	2	8.40	7.77	8.09	8.21	8.01	8.19	8.33	SD
06/27/20	Renew	25.0	3	8.29	8.32	8.27	8.20	8.12	8.17	8.18	SD
06/28/20	120 Hr.	26.3	3	8.15	8.21	8.20	8.18	8.19	8.18	7.13	LM
06/28/20	Renew	25.7	3	8.13	8.15	8.14	8.06	8.00	8.00	7.94	LM
06/29/20	144 Hr.	26.3	3	7.92	7.93	7.98	7.99	7.99	8.04	8.05	LM
06/29/20	Renew	25.7	3	7.84	7.97	8.03	7.98	7.78	7.97	7.97	LM
06/30/20	168 Hr.	26.0	3	8.16	8.16	7.46	8.09	8.10	8.16	8.16	SD

Huthner and Associates
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

Tyler, Westside WWTF

Lab ID# 31570

Test Date: June 23, 2020

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/23/20	1	7.57	7.76	100	170	1081	<0.01	N/A	SD
06/25/20	2	7.67	7.89	92	142	1014	<0.01	N/A	SD
06/27/20	3	7.44	7.94	96	156	1057	<0.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
06/23/20	RS1	7.87	8.17	56	56	225	<0.01	N/A	SD
06/25/20	RS2	7.93	7.95	52	38	148	<0.01	N/A	SD
06/27/20	RS3	8.06	8.32	60	44	210	<0.01	N/A	SD

¹ Measurements taken in 100% solution.

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.421	0.482	0.444
2	28% Effluent	5	0.437	0.489	0.468
3	37% Effluent	5	0.456	0.488	0.474
4	50% Effluent	5	0.423	0.483	0.464
5	66% Effluent	5	0.415	0.486	0.463
6	88% Effluent	5	0.421	0.486	0.467

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.027	0.012	6.01
2	28% Effluent	0.000	0.021	0.009	4.39
3	37% Effluent	0.000	0.012	0.005	2.57
4	50% Effluent	0.001	0.024	0.011	5.18
5	66% Effluent	0.001	0.028	0.013	6.08
6	88% Effluent	0.001	0.027	0.012	5.74

Shapiro - Wilk's Test For Normality

D = 0.014

W = 0.914

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data **Pass** normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.78

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data **Pass** B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.003	0.001	0.915
Within (Error)	24	0.014	0.001	
Total	29	0.016		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control<Treatment

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	0.444	0.444		
2	28% Effluent	0.468	0.468	-1.600	
3	37% Effluent	0.474	0.474	-1.973	
4	50% Effluent	0.464	0.464	-1.333	
5	66% Effluent	0.463	0.463	-1.280	
6	88% Effluent	0.467	0.467	-1.533	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 2 of 2 Ho:Control<Treatment

Grp	Identification	Num of Reps	Minimum	Sig	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	5			
2	28% Effluent	5	0.035	8.0	-0.024
3	37% Effluent	5	0.035	8.0	-0.030
4	50% Effluent	5	0.035	8.0	-0.020
5	66% Effluent	5	0.035	8.0	-0.019
6	88% Effluent	5	0.035	8.0	-0.023

**APPENDIX A
RAW DATA**

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION
DAILY RAW DATA TABLE
PAGE 1 OF 2

CLIENT Tyler - Westside
OUTFALL 001
LAB ID # 31570

START DATE/TIME 06/23/20 DIL 1445
END DATE/TIME 06/30/20 DIL 1445

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/24	A	A	A	A	A	A	A	A	A	A	TG	1445
06/25	A	A	A	A	A	A	A	A	A	A	DIC	1430
6/26	A	A	A	A	A	A	A	A	A	A	MH	1300
6/27	4	3	3	3	5	3	4	4	5	3	TG	1400
6/28	11	10	10	9	9	8	7	10	9	11	TG	1300
06/29	A	A	A	A	A	A	A	A	A	A	DIC	1315
06/30	12	12	14	13	13	14	12	13	13	14	DIC	1445
	27	25	27	25	27	25	23	27	27	28		

\bar{x} # Young w/o Dead = 26.1 CV% = 5.84
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/24	A	A	A	A	A	A	A	A	A	A	TG	1445
06/25	A	A	A	A	A	A	A	A	A	A	DK	1430
6/26	A	A	A	A	A	A	A	A	A	A	MH	1300
6/27	3	2	4	4	5	4	3	3	5	4	TG	1400
6/28	8	8	9	10	7	7	10	11	10	10	TG	1300
06/29	A	A	A	A	A	A	A	A	A	A	DK	1315
06/30	12	13	13	14	13	12	13	14	12	13	DIC	1445
	23	23	26	28	25	23	26	28	27	27		

\bar{x} # Young w/o Dead = 25.6 CV% = 7.86
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

28

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/24	A	A	A	A	A	A	A	A	A	A	TG	1445
06/25	A	A	A	A	A	A	A	A	A	A	DIC	1430
6/26	A	A	A	A	A	A	A	A	A	A	MH	1300
6/27	3	2	2	3	3	3	4	3	4	3	TG	1400
6/28	7	7	6	9	10	8	10	8	10	8	TG	1300
06/29	A	A	A	A	A	A	A	A	A	A	DK	1315
06/30	14	12	13	12	12	13	14	14	13	12	DK	1445
	24	21	21	24	25	24	28	25	27	23		

\bar{x} # Young w/o Dead = 24.2 CV% = 9.30
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

37

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
6/24	A	A	A	A	A	A	A	A	A	A	TG	1445
06/25	A	A	A	A	A	A	A	A	A	A	DK	1430
6/26	A	A	A	A	A	A	A	A	A	A	MH	1300
6/27	3	3	2	4	5	3	2	4	5	3	TG	1400
6/28	8	8	6	10	11	9	6	9	10	8	TG	1300
06/29	A	A	A	A	A	A	A	A	A	A	DK	1315
06/30	12	12	13	14	12	13	14	12	14	13	DK	1445
	23	23	21	28	28	25	22	25	29	24		

\bar{x} # Young w/o Dead = 24.8 CV% = 11.05
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

**7-DAY CHRONIC TOXICITY TEST
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY: Tyler - Westside DATE/TIME STARTED: 6-23-20 JC 1500
 OUTFALL #: 001 PROJECT #: 31570 DATE/TIME ENDED: 6-30-20 JC 1500
 ORGANISM ID#: PD-20-174

Conc.	6-24-20 JC 1500					6-25-20 JC 1170					6-26-20 MH 0835					6-27-20 JC 1000					6-28-20 JC 1070									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
PCar	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
TCar	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
37	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
50	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
60	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
88	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	6-29-20 MH 0910					6-30-20 JC 1500					Mean Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCar	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCar	8	8	8	8	8	8	8	8	8	8	100.0	0.00
28	8	8	8	8	8	8	8	8	8	8	100.0	0.00
37	8	8	8	8	8	8	8	8	8	8	100.0	0.00
50	8	8	8	8	8	8	8	8	8	8	100.0	0.00
60	8	8	8	8	8	8	8	8	8	8	100.0	0.00
88	8	8	8	8	8	8	8	8	8	8	100.0	0.00



Client / Facility Tyler - Westside

Lab ID Number 31570

Outfall Number 001

Test Date 6-23-20

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
6-23-20	1	7.57	7.76	100	170	1081	<0.01	N/A	SD
6-25-20	2	7.67	7.89	92	142	1014	<0.01	N/A	SD
6-27-20	3	7.44	7.94	96	156	1057	<0.01	N/A	SD

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
6-23-20	RS 1	7.87	8.17	56	56	225	<0.01	N/A	SD
6-25-20	RS 2	7.93	7.95	52	38	148	<0.01	N/A	SD
6-27-20	RS 3	8.06	8.32	60	44	210	<0.01	N/A	SD

Notes:

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

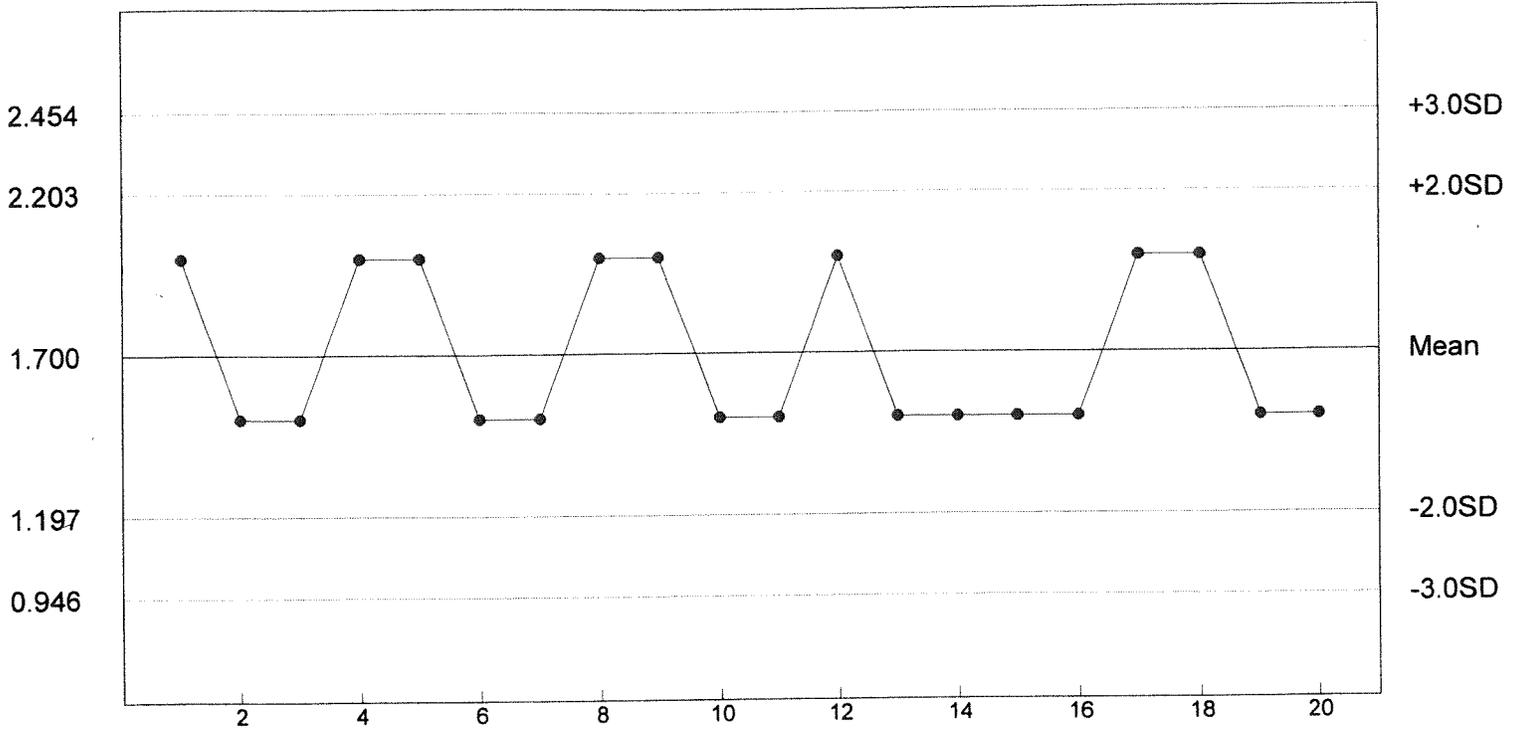
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 6
 TEST DATE: 06/03/20 - 06/10/20
 1645 Hrs - 1645 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	10
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.0 g/L	0.5 g/L

Reference Tox Sodium Chloride g/L

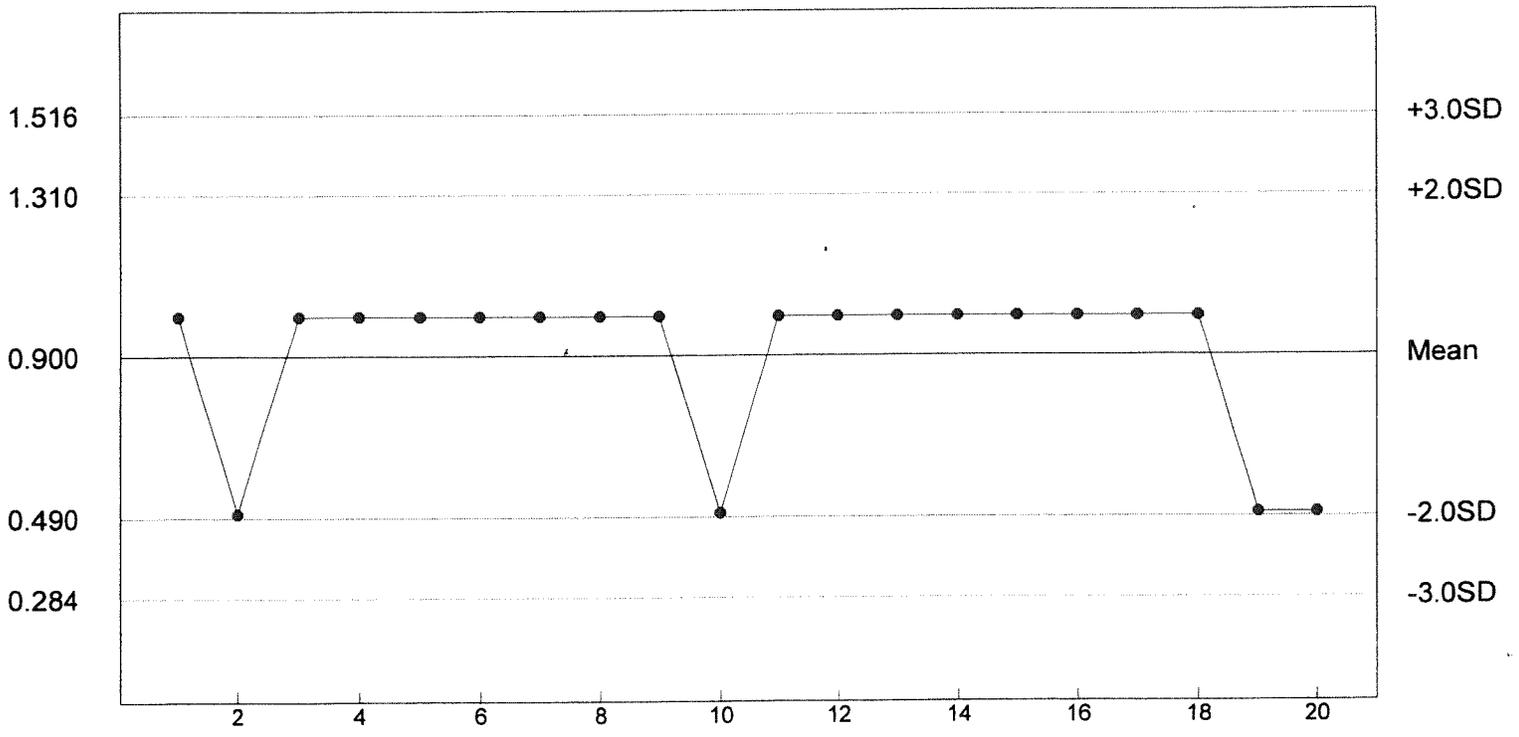
C. dubia Survival - NOEC



n= 20 Mean= 1.700 SD= 0.251 CV= 14.78% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.900 SD= 0.205 CV= 22.80% Min= 0.500 Max= 1.000

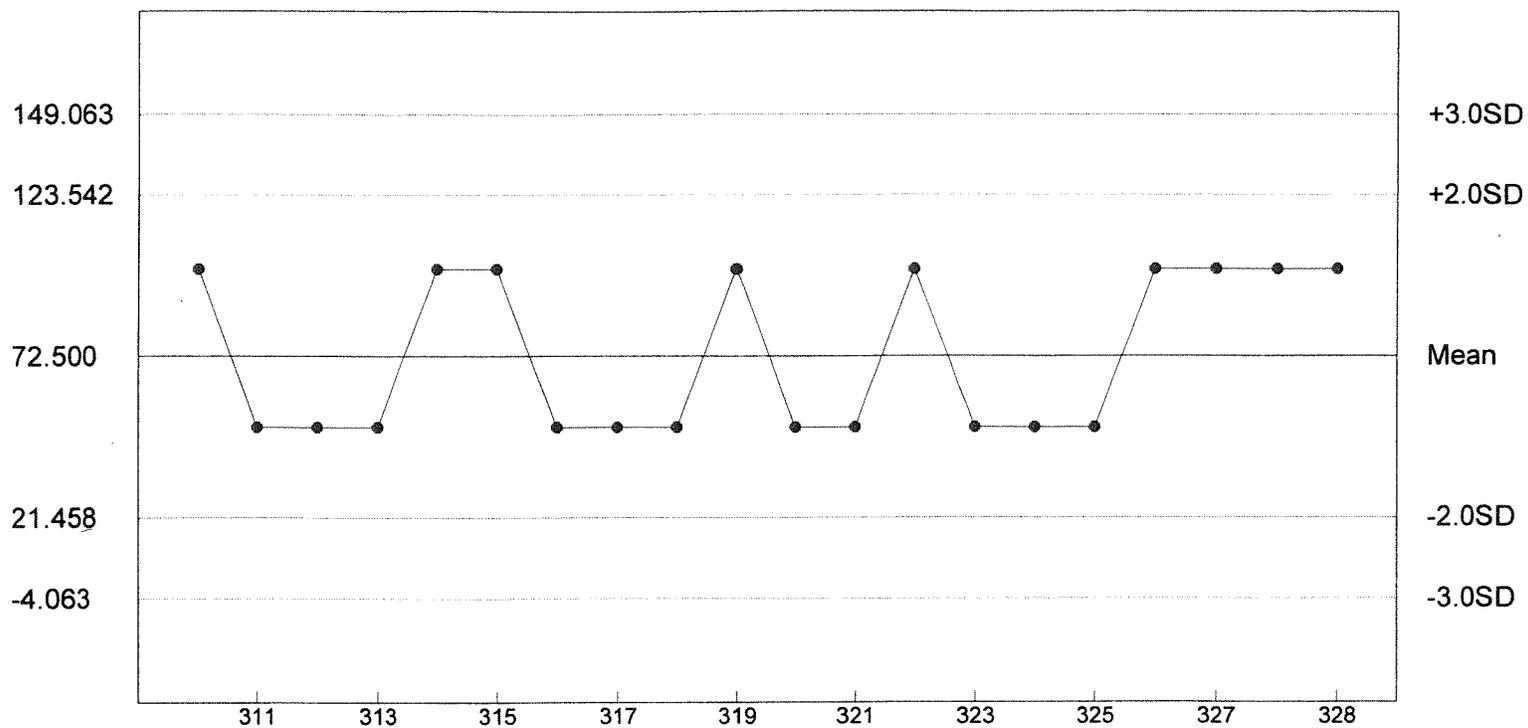
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 6
 TEST DATE: 06/03/20 - 06/10/20
 1610 Hrs - 1610 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	0
200	40	15
400	40	40
800	40	40

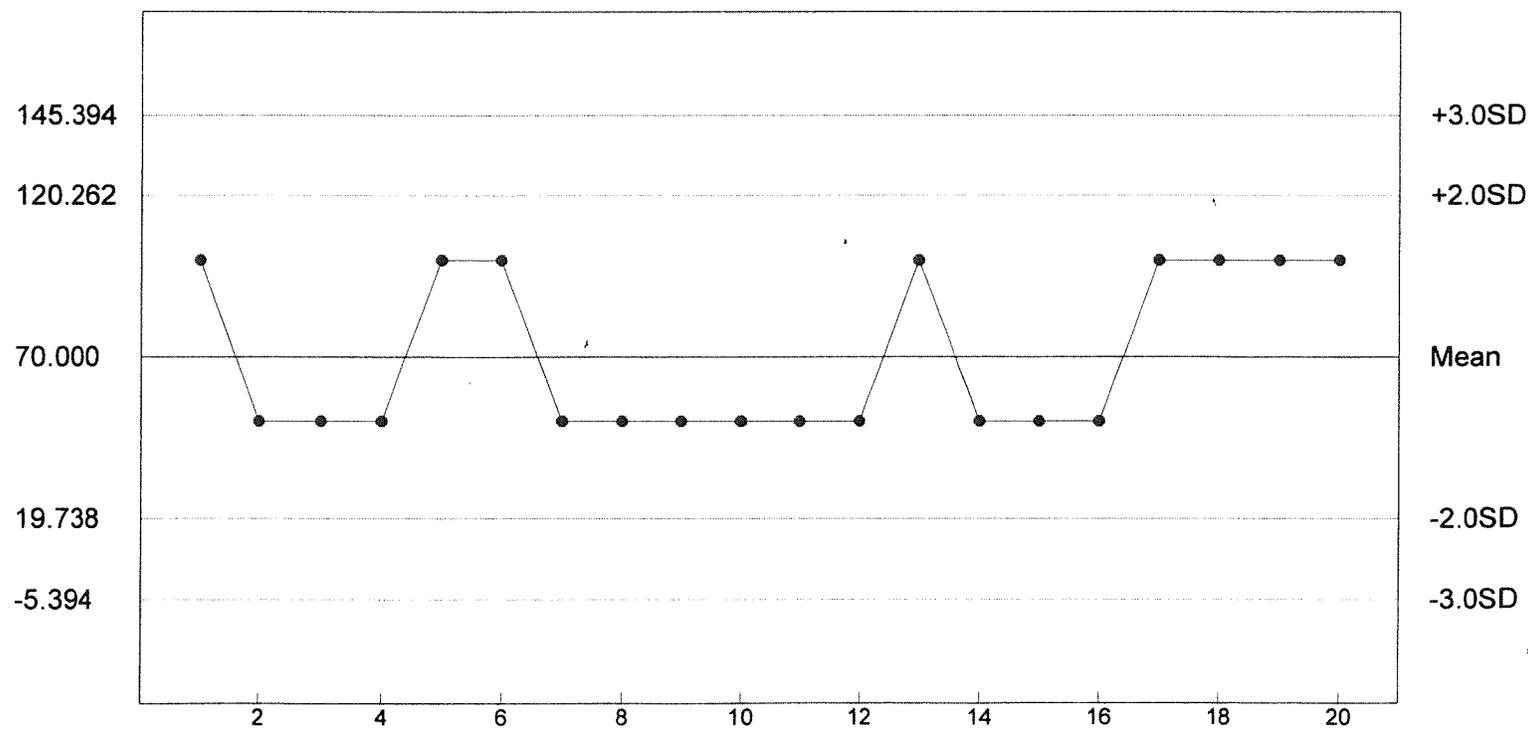
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
200 ug/L	100 ug/L	200 ug/L	100 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



n= 20 Mean= 72.500 SD= 25.521 CV= 35.20% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



n= 20 Mean= 70.000 SD= 25.131 CV= 35.90% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31570 PROJECT NAME Tyler - Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
WEST. EFF.	P.D.T.	6/22/2020 10AM	6/22/2020 8AM	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. R.S.	P.D.T.	6/22/2020	8 AM	1

TYPE OF TEST 7 Day CIF
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/22/2020 TIME: 1600 RECEIVED BY AT THIS DATE/TIME: Rance Lanott 6/22/20 1600
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 METHOD OF SHIPMENT: Greyhound _____ Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rance Lanott DATE: 6/22/20 TIME: 1830 SAMPLE TEMP. @ RECEIPT: 0.4°C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31570 PROJECT NAME Tyler - West Side PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W. Side Eff.	R.S.	6/23/20 PM	6/24/20 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S. T.P. & S.	R.S.	6/24/20	8 AM	1

TYPE OF TEST 7 Day C/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/24/20 TIME: 1530 RECEIVED BY AT THIS DATE/TIME: Rance Parrott 6/24/20
 1530
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____
 RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____
 RECEIVED: Rance Parrott DATE: 6/24/20 TIME: 1800 SAMPLE TEMP. @ RECEIPT: 2.9 °C

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 31570 PROJECT NAME Tyler-Westside PERMIT# 10653-001

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
W.S.T.P. EFF.	P.D.T.	6/25/2020 10am	6/26/2020 8am	12		*		1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
W.S.T.P. EFF R.S.	P.D.T.	6/26/2020	8am	1

TYPE OF TEST 7 Day C/F
 NAME OF RECEIVING WATER Black Fork Creek
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: [Signature] DATE: 6/26/2020 TIME: 1500 RECEIVED BY AT THIS DATE/TIME: Rancefanott 6/26/20 1500

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME: _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Rancefanott DATE: 6/26/20 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 0.2°C

TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING FORM

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per female significantly less ($p=0.05$) than the number of young per female in the control for the % effluent corresponding to (significant nonlethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	28%	37%	50%	66%	88%
24 hour	100.0	100.0	100.0	100.0	100.0	100.0
48 hour	100.0	100.0	100.0	100.0	100.0	100.0
End of Test	100.0	100.0	100.0	100.0	100.0	100.0
CV%	0.00	0.00	0.00	0.00	0.00	0.00

2. Fisher Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC reproduction = 88% effluent
- d.) LOEC reproduction = Not Applicable

TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING FORM

PIMEPHALES PROMELAS SURVIVAL AND GROWTH

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
28%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
37%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
50%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
66%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
88%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (88%) YES X NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

- a.) NOEC survival = 88% effluent
- b.) LOEC survival = Not Applicable
- c.) NOEC growth = 88% effluent
- d.) LOEC growth = Not Applicable

**CITY OF TYLER- WESTSIDE WWTF
 TPDES PERMIT NUMBER 10653-001
 BIOMONITORING REPORTING
 TEST DATE: 06/23/20
 FOR NET DMR**

I. <i>Ceriodaphnia dubia</i>	Response
1. For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
2. For the water flea, Parameter TOP3B, report the NOEC value for survival.	100%
3. For the water flea, Parameter TXP3B, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
4. For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0".	0
5. For the water flea, Parameter TPP3B, report the NOEC value for reproduction.	100%
6. For the water flea, Parameter TYP3B, report the LOEC value for reproduction. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
II. <i>Pimephales promelas</i>	Response
7. For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0".	0
8. For the fathead minnow, Parameter TOP6C, report the NOEC value for survival.	100%
9. For the fathead minnow, Parameter TXP6C, report the LOEC value for survival. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
10. For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0".	0
11. For the fathead minnow, Parameter TPP6C, report the NOEC value for growth.	100%
12. For the fathead minnow, Parameter TYP6C, report the LOEC value for growth. <i>(For Q: Third column param. NODI pulldown menu, highlight "Q")</i>	Q
22415 Retest Number 1 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9
22416 Retest Number 2 <i>(For 9: Third column param. NODI pulldown menu, highlight "9")</i>	9

In comment box at bottom left:

9 = No retests required.

Q = There were no lethal or sub-lethal effects for either species; therefore the value is not quantifiable (Q).



NELAP Accredited
Certificate T104704280-23-30



Analytical Report

1070101

For

City of Tyler - Westside WWTP

Ryan Peden

P. O. Box 2039,

Tyler, TX 75710

Wednesday, July 31, 2024

RP240731004

Approved by

A handwritten signature in black ink, appearing to read 'Kent Crozier', is written over a light gray rectangular background.

Kent Crozier, Lab Manager

8310 S. Broadway | Tyler, TX 75703 | www.aeltyler.com

P: 903-509-8700 | F:903-509-8811

The analyses or interpretations contained in this report have been prepared at the client's direction, are based upon observations of materials provided by the client and express the best judgement of Analytical Environmental Laboratory LLC. Analytical Environmental Laboratory LLC makes no other representation or warranty, expressed or implied, regarding this report.

Date Sampled : 06/21/2024

Laboratory ID : 1070101-01

Time Sampled 8:00AM

Date Received : 06/21/2024

Project Name :

Time Received : 11:02AM

Project Number :

Matrix : Liquid

Sample Description : Effluent

Sample Type : Composite

Composite Times: 06/20/24 10:00 - 06/21/24 8:00

Parameter	Result	Unit	MQL	Qualifier	Test Method	QA	Date	Tech	Ac.
Alkalinity	210	mg CaCO ₃ /L	20		SM 2320B-1997 2021ed	24073102	7/30/24 15:15	KRB	N
Bicarbonate	210	mg CaCO ₃ /L	20		SM 2320B-1997 2021ed	24073102	7/30/24 15:15	KRB	
Carbonate	<20	mg CaCO ₃ /L	20		SM 2320B-1997 2021ed	24073102	7/30/24 15:15	KRB	
Hydroxide	<20	mg CaCO ₃ /L	20		SM 2320B-1997 2021ed	24073102	7/30/24 15:15	KRB	
Nitrate as N	<0.5	mg/L	0.5		EPA 600 300.0mod	24071104	6/21/24 18:23	KRC	N
Conductivity	849	μS/cm at 25°C	10		EPA 120.1	24070810	7/3/24 14:56	KRB	N
Metals-Total									
Phosphorus	3.21	mg/L	0.025		EPA 200.7	24070508	7/2/24 19:46	BLC	N
Total Kjeldahl Nitrogen	28.5	mg/L	2	O2	EPA 351.2mod	24072506	7/22/24 11:02	JAB	N

Analytical Environmental Laboratory LLC

8310 South Broadway

Tyler, TX 75703

903-509-8700

Date Sampled : **06/21/2024**

Laboratory ID : **1070101-02**

Time Sampled **10:00AM**

Date Received : **06/21/2024**

Project Name :

Time Received : **11:02AM**

Project Number :

Matrix : **Liquid**

Sample Description : **Effluent**

Sample Type : **Grab**

Parameter	Result	Unit	ML	Qualifier	Test Method	QA	Date	Tech	Ac.
Oil and Grease	<13.2	mg/L	13.2		EPA 1664B SPE(HEM)mod	24070501	7/5/24 11:34	KRB	N

Date/Time Analyzed : 7/5/24 11:34 QA Batch Number : Qb24070501
 Analysis Method : EPA 1664B SPE (HEM)mod Units : mg/L Analyst : KRB

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Oil and Grease	LCS		36.5		40	91.2	78-114	-	
Oil and Grease	MB		0.1						
Oil and Grease	MS	1070069.02	34.2		40	82.2	78-114	-	

Date/Time Analyzed : 7/2/24 18:19 QA Batch Number : Qb24070508
 Analysis Method : EPA 200.7 Units : mg/L Analyst : BLC

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Phosphorus	CCB		0.000544						
Phosphorus	CCB		0.000665						
Phosphorus	CCB		0.000735						
Phosphorus	CCB		0.000948						
Phosphorus	CCB		0.00102						
Phosphorus	CCV		9.73		10	97.3	90-110	-	
Phosphorus	CCV		9.79		10	97.9	90-110	-	
Phosphorus	CCV		9.8		10	98	90-110	-	
Phosphorus	CCV		9.84		10	98.4	90-110	-	
Phosphorus	CCV		9.85		10	98.5	90-110	-	
Phosphorus	ICV		10		10	100	95-105	-	
Phosphorus	ICV		9.87		10	98.7	95-105	-	
Phosphorus	LCS		1		1	100	85-115	-	
Phosphorus	LCSD		1.01	1	1	101	85-115	0-20	
Phosphorus	MB		0.00416						

Date/Time Analyzed : 7/3/24 14:56 QA Batch Number : Qb24070810
 Analysis Method : EPA 120.1 Units : $\mu\text{S/cm at } 25^{\circ}\text{C}$ Analyst : KRB

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Conductivity	Calibration Standard		1450		1413		80-120	-	
Conductivity	Duplicate	1070219.01	399	0.7			-	0-20	
Conductivity	ICV		204		200	101.9	90-110	-	
Conductivity	ICV		204		200	102.2	90-110	-	

Date/Time Analyzed : 6/21/24 19:30 QA Batch Number : Qb24071104
 Analysis Method : EPA 600 300.0mod Units : mg/L Analyst : KRC

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Nitrate as N	CCB		0						
Nitrate as N	CCV		4.88		5	97.6	90-110	-	
Nitrate as N	ICV		4.72		5	94.4	90-110	-	
Nitrate as N	LCS		1.89		2	94.5	90-110	-	
Nitrate as N	MB		0						

Analytical Environmental Laboratory LLC
 8310 South Broadway
 Tyler, TX 75730
 903-509-8700

1070101

Date/Time Analyzed : 6/21/24 18:40 QA Batch Number : Qb24071104
 Analysis Method : EPA 600 300.0mod Units : mg/L Analyst : KRC

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Nitrate as N	MS	1070101.01	2.03		2	96.1	80-120	-	
Nitrate as N	MSD		2.03	0	2	96.1	80-120	0-20	

Date/Time Analyzed : 7/22/24 10:54 QA Batch Number : Qb24072506
 Analysis Method : EPA 351.2mod Units : mg/L Analyst : JAB

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Total Kjeldahl Nitrogen	CCB		-0.099						
Total Kjeldahl Nitrogen	CCB		-0.114						
Total Kjeldahl Nitrogen	CCB		-0.118						
Total Kjeldahl Nitrogen	CCV		4.68		5	93.6	90-110	-	
Total Kjeldahl Nitrogen	CCV		5		5	100	90-110	-	
Total Kjeldahl Nitrogen	CCV		5.09		5	101.8	90-110	-	
Total Kjeldahl Nitrogen	Duplicate	1070101.01	26.5	7.3			-	0-20	
Total Kjeldahl Nitrogen	ICV		5.22		5	104.4	90-110	-	
Total Kjeldahl Nitrogen	LCS		2.14		2	107	90-110	-	
Total Kjeldahl Nitrogen	MB		-0.003						
Total Kjeldahl Nitrogen	MS	1070101.01	34.1		2	341	90-110	-	SM, SB

Date/Time Analyzed : 7/30/24 15:15 QA Batch Number : Qb24073102
 Analysis Method : SM 2320B-1997 2021ed Units : mg CaCO₃/L Analyst : KRB

<i>Parameter</i>	<i>Analysis Type</i>	<i>Analysis I.D</i>	<i>Analyzed value</i>	<i>RPD</i>	<i>Spike Added</i>	<i>% Rec</i>	<i>Rec Ctrl Limits</i>	<i>RPD Ctrl Limits</i>	<i>Qualifier</i>
Alkalinity	Duplicate	1070101.01	200	4.9			-	0-20	
Carbonate	Duplicate	1070101.01	0				-	0-20	
Alkalinity	LCS		100		100	100	85-115	-	
Carbonate	LCS		100		100	100	85-115	-	
Alkalinity	MB		0						
Bicarbonate	MB		0						
Carbonate	MB		0						
Hydroxide	MB		0						

Analytical Environmental Laboratory LLC
 8310 South Broadway
 Tyler, TX 75730
 903-509-8700

QA Flags, Notes, and Definitions for Job 1070101

NOTES & DEFINITIONS

Unless otherwise specified, these test results meet the requirements of TNI.

µg/L Micrograms per Liter (ppb)

µg/kg Micrograms per Kilogram (ppb)

mg/L Milligrams per Liter (ppm)

mg/kg Milligrams per Kilogram (ppm)

Note: If RPD shows recovery outside control limits and data not flagged, then RPD was not calculable.

MDL (TRRP SQL) The minimum concentration of a COC the laboratory would measure and report with 99% confidence that the analyte concentration is greater than zero. The MDL reported in the MDL column is the method detection limit adjusted to reflect sample dilution.

MQL Lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The MQL reported in the MQL column is the method quantitation limit adjusted to reflect sample dilution.

Note: Results are reported on a wet weight basis unless otherwise noted.

Note: AEL is certified in Drinking Water Matrix for Total Coliforms and E.coli (P/A). Other Drinking water tests are not part of AEL's scope. Lab approval tests noted under Ac.

Note: Tests noted with a "N" under Ac. column represents that the test is part of our NELAP Accreditation.

Note: If "N" is not showing under Ac. column, that test is not Nelac accredited.

Note: Tests noted with a "T" under Ac. column represents that the test is part of our TCEQ Drinking Lab Approval.

Note: Subcontract under Method denotes test has been subcontracted. Only the value will be displayed, details can be found at end of report.

QA FLAGS

O2	Sample prepared or analyzed out of hold time.
SB	Matrix spike accuracy and MS/MSD RPD could not be assessed due to high background analyte levels in the spiked sample.
SM	Matrix spike recovery outside control limit due to suspected matrix interference, so the result for the sample used for the matrix spike may be biased (low or high) in a similar manner as the matrix spike unless additional matrix spike flag or note added.

Analytical Environmental Laboratory LLC
8310 South Broadway
Tyler, TX 75730
903-509-8700

CASE NARRATIVE

Job ID : 1070101



Client Name : City of Tyler - Westside WWTP
Project Name :
Date Received : 06/21/2024
Collected By : WS Operators

Note Source: Raw Data Review
Source Name: CBOD5
Note: Analysis GGA standard past expiration date.

Note Source: Raw Data Review
Source Name: Metals-Total
Note: (ICSA/SIC) Analyses reported without the new SIC corrections in SOP DN087 2024A. Run and reported using previous corrections and visual checks of instrument results to ensure no interference present.

Qualifiers will be noted next to the sample results or QC if applicable.
Sample Condition Check will note any login discrepancies or issues.

A handwritten signature in black ink, appearing to read 'KRC', is written over a light gray rectangular background.

Released By : KRC
Title : Lab Manager

Analytical Environmental Laboratory LLC
8310 South Broadway
Tyler, TX 75730
903-509-8700

SAMPLE CONDITION CHECKLIST

Date: 07/31/2024 10:42 AM

Client Name : City of Tyler - Westside WWTP		
Client Address : P. O. Box 2039		
Job ID : 1070101	Date Received : 06/21/2024	Time Received : 11:02 AM
Temperature(°C) : 5.6/5.4		
Thermometer ID : T130	pH Paper ID : N/A	

Comments : Include actions taken to resolve discrepancies/problem:

	Check Points	Yes	No	N/A
1	Custody Seals Intact (Shipping &/or Sample containers)			✓
2	Sample(s) received in the Process of Chilling	✓		
3	Chain of Custody (COC) Present	✓		
4	COC Signed by sampler / relinquished / received	✓		
5	All expected Containers Present	✓		
6	All containers Intact	✓		
7	COC and sample Labels agree	✓		
8	Sample(s) in Appropriate lab Container	✓		
9	Sample(s) at correct Temperature	✓		
10	Sample(s) correctly Preserved	✓		
11	Sample Amount Sufficient for analyses requested	✓		
12	Samples received within Holding Time; aqueous pH within 15 min	✓		
13	Sample pH checked and in range required by method	✓		
14	Sample filtered as required			✓
15	Tests needing zero Headspace completely filled (or are plugs in VOAs or Encore); tests needing minimum hs. filled appropriately.			✓

CheckIn By : LAC

CheckIn Date : 06/21/2024

Project
1113566

TYL1-A

City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

Printed 08/22/2024
7:31

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SAMPLE CROSS REFERENCE

Project
1113566

Printed 8/22/2024 Page 1 of 6

City of Tyler West Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

Sample	Sample ID	Taken	Time	Received
2323457	Grab (1st/3rd) _____	08/07/2024	08:00:00	08/07/2024

- Bottle 01 Polyethylene Quart
- Bottle 02 NaOH to pH >12 Polyethylene 250 mL/amber
- Bottle 03 NaOH to pH >12 Polyethylene 250 mL/amber
- Bottle 04 H2SO4 to pH <2 Amber Glass 250 mL w/Teflon lined lid
- Bottle 05 Prepared Bottle: CN TRAACS Autosampler Vial (Batch 1132245) Volume: 10.00000 mL <== Derived from 03 (5 ml)
- Bottle 06 Prepared Bottle: CN TRAACS Autosampler Vial (Batch 1132241) Volume: 10.00000 mL <== Derived from 03 (5 ml)
- Bottle 07 Prepared Bottle: Phenol TRAACS Autosampler Vial (Batch 1132750) Volume: 6.00000 mL <== Derived from 04 (6 ml)
- Bottle 08 Prepared Bottle: Phenol TRAACS Autosampler Vial (Batch 1132965) Volume: 6.00000 mL <== Derived from 04 (6 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
SM 4500-CN ⁻ G-2016			08/09/2024		08/09/2024
SM 4500-CN ⁻ G-2016	05	1132245	08/08/2024	1132612	08/09/2024
SM 4500-CN ⁻ E-2016	06	1132241	08/08/2024	1132608	08/09/2024
SM 3500-Cr B-2011	01	1132302	08/08/2024	1132302	08/08/2024
SM 3500-Cr B-2011			08/07/2024		08/07/2024
EPA 420.4 1	08	1132965	08/13/2024	1133100	08/13/2024

Sample	Sample ID	Taken	Time	Received
2323484	VOA Comp (1st/3rd) _____	08/06/2024	22:00:00	08/07/2024

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City of TylerWest Plant
 Ryan Peden
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- Bottle 01 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 02 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 03 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 04 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 05 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 06 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 07 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 08 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 09 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 10 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 11 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 12 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 13 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 14 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 15 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 16 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 17 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 18 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
- Bottle 19 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 20 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid
- Bottle 21 Glass vial 40 mL w/ Teflon lined lid (2) (Batch 1132406) Volume: 1.00000 mL <== Derived from 04 (1 ml)
- Bottle 22 Glass vial 40 mL w/ Teflon lined lid (2) (Batch 1132408) Volume: 1.00000 mL <== Derived from 02 (1 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 624.1	21	1132406	08/08/2024	1132589	08/08/2024
EPA 624.1	22	1132408	08/08/2024	1132590	08/08/2024
Composite Sample	02	1132408	08/08/2024	1132408	08/08/2024
Composite Sample	04	1132406	08/08/2024	1132406	08/08/2024

Sample	Sample ID	Taken	Time	Received
2323493	Composite (1st/3rd) _____	08/07/2024	08:00:00	08/07/2024

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- Bottle 01 Polyethylene Quart
- Bottle 02 Glass /clean metals w/HCl
- Bottle 03 Amber 32 Oz
- Bottle 04 Amber 32 Oz
- Bottle 05 Amber 32 Oz
- Bottle 06 Amber 32 Oz
- Bottle 07 Amber 32 Oz
- Bottle 08 Amber 32 Oz
- Bottle 09 Amber 32 Oz
- Bottle 10 H2SO4 to pH <2 Glass Qt w/Teflon lined lid
- Bottle 11 H2SO4 to pH <2 Glass Qt w/Teflon lined lid
- Bottle 12 16 oz HNO3 Metals Plastic
- Bottle 13 8 oz Plastic H2SO4 pH < 2
- Bottle 14 Prepared Bottle: ICP Preparation for Metals (Batch 1132414) Volume: 50.00000 mL <== Derived from 12 (50 ml)
- Bottle 15 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132456) Volume: 1.00000 mL <== Derived from 04 (1015 ml)
- Bottle 16 Prepared Bottle: 632L\632S 2 mL Autosampler Vial (Batch 1132654) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 17 Prepared Bottle: GCXL\GCXS 2 mL Autosampler Vial (Batch 1132655) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 18 Prepared Bottle: OPXL\OPXS 2 mL Autosampler Vial (Batch 1132656) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 19 Prepared Bottle:PCBL 2 mL Autosampler Vial (Batch 1132657) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 20 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132861) Volume: 10.00000 mL <== Derived from 06 (995 ml)
- Bottle 21 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132983) Volume: 5.00000 mL <== Derived from 08 (995 ml)
- Bottle 22 Prepared Bottle: 2 mL Autosampler Vial (Batch 1133467) Volume: 1.00000 mL <== Derived from 10 (894 ml)
- Bottle 23 Prepared Bottle: Mercury Preparation for Metals (Batch 1133729) Volume: 50.00000 mL <== Derived from 02 (47 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 608.3	17	1132655	08/09/2024	1134122	08/14/2024
EPA 608.3	19	1132657	08/09/2024	1133583	08/14/2024
EPA 615	20	1132861	08/12/2024	1134021	08/17/2024
EPA 632	16	1132654	08/09/2024	1133653	08/12/2024
EPA 300.0 2.1	01	1132790	08/08/2024	1132790	08/08/2024
EPA 604.1	21	1132983	08/12/2024	1133537	08/14/2024
EPA 625.1	15	1132456	08/08/2024	1132901	08/09/2024
EPA 614	18	1132656	08/09/2024	1134416	08/12/2024
ASTM D7065-11	22	1133467	08/14/2024	1133861	08/15/2024
EPA 200.8 5.4	14	1132414	08/08/2024	1132548	08/08/2024
EPA 245.7 2	23	1133729	08/16/2024	1133870	08/16/2024
EPA 200.8 5.4	14	1132414	08/08/2024	1132746	08/09/2024
EPA 200.8 5.4	14	1132414	08/08/2024	1132905	08/12/2024
Calculation			08/09/2024		08/09/2024
SM 3500-Cr B-2011	01	1132302	08/08/2024	1132302	08/08/2024
SM 3500-Cr B-2011			08/07/2024		08/07/2024

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Sample	Sample ID	Taken	Time	Received
2323493	Composite (1st/3rd)	08/07/2024	08:00:00	08/07/2024

- Bottle 01 Polyethylene Quart
- Bottle 02 Glass /clean metals w/HCl
- Bottle 03 Amber 32 Oz
- Bottle 04 Amber 32 Oz
- Bottle 05 Amber 32 Oz
- Bottle 06 Amber 32 Oz
- Bottle 07 Amber 32 Oz
- Bottle 08 Amber 32 Oz
- Bottle 09 Amber 32 Oz
- Bottle 10 H2SO4 to pH <2 Glass Qt w/Teflon lined lid
- Bottle 11 H2SO4 to pH <2 Glass Qt w/Teflon lined lid
- Bottle 12 16 oz HNO3 Metals Plastic
- Bottle 13 8 oz Plastic H2SO4 pH < 2
- Bottle 14 Prepared Bottle: ICP Preparation for Metals (Batch 1132414) Volume: 50.00000 mL <== Derived from 12 (50 ml)
- Bottle 15 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132456) Volume: 1.00000 mL <== Derived from 04 (1015 ml)
- Bottle 16 Prepared Bottle: 632L\632S 2 mL Autosampler Vial (Batch 1132654) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 17 Prepared Bottle: GCXL\GCXS 2 mL Autosampler Vial (Batch 1132655) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 18 Prepared Bottle: OPXL\OPXS 2 mL Autosampler Vial (Batch 1132656) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 19 Prepared Bottle:PCBL 2 mL Autosampler Vial (Batch 1132657) Volume: 1.00000 mL <== Derived from 03 (991 ml)
- Bottle 20 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132861) Volume: 10.00000 mL <== Derived from 06 (995 ml)
- Bottle 21 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132983) Volume: 5.00000 mL <== Derived from 08 (995 ml)
- Bottle 22 Prepared Bottle: 2 mL Autosampler Vial (Batch 1133467) Volume: 1.00000 mL <== Derived from 10 (894 ml)
- Bottle 23 Prepared Bottle: Mercury Preparation for Metals (Batch 1133729) Volume: 50.00000 mL <== Derived from 02 (47 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
SM 4500-P E-2011	13	1133525	08/15/2024	1133525	08/15/2024

Sample	Sample ID	Taken	Time	Received
2323503	Table V/Comp (1st/3rd)	08/07/2024	08:00:00	08/07/2024

- Bottle 01 Amber 32 Oz
- Bottle 02 Amber 32 Oz
- Bottle 03 16 oz HNO3 Metals Plastic
- Bottle 04 Prepared Bottle: 40 mL Vial Extract (Batch 1132304) Volume: 10.00000 mL <== Derived from 01 (100 ml)
- Bottle 05 Prepared Bottle: ICP Preparation for Metals (Batch 1132414) Volume: 50.00000 mL <== Derived from 03 (50 ml)
- Bottle 06 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132456) Volume: 1.00000 mL <== Derived from 02 (1032 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 1667	04	1132304	08/08/2024	1132712	08/08/2024

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Sample	Sample ID	Taken	Time	Received
2323503	Table V/Comp (1st/3rd) _____	08/07/2024	08:00:00	08/07/2024

Bottle 01 Amber 32 Oz
 Bottle 02 Amber 32 Oz
 Bottle 03 16 oz HNO3 Metals Plastic
 Bottle 04 Prepared Bottle: 40 mL Vial Extract (Batch 1132304) Volume: 10.00000 mL <== Derived from 01 (100 ml)
 Bottle 05 Prepared Bottle: ICP Preparation for Metals (Batch 1132414) Volume: 50.00000 mL <== Derived from 03 (50 ml)
 Bottle 06 Prepared Bottle: 2 mL Autosampler Vial (Batch 1132456) Volume: 1.00000 mL <== Derived from 02 (1032 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 625.1	06	1132456	08/08/2024	1133099	08/12/2024
EPA 200.8 5.4	05	1132414	08/08/2024	1132548	08/08/2024

Sample	Sample ID	Taken	Time	Received
2323507	Table V/Grab(1st/3rd) _____	08/07/2024	08:00:00	08/07/2024

Bottle 01 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
 Bottle 02 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)
 Bottle 03 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 624.1	03	1132591	08/08/2024	1132591	08/08/2024

Sample	Sample ID	Taken	Time	Received
2323513	Influent Oxadiazinon	08/07/2024	08:00:00	08/07/2024

Bottle 01 Amber 32 Oz
 Bottle 02 Prepared Bottle: OPXL/OPXS 2 mL Autosampler Vial (Batch 1132656) Volume: 1.00000 mL <== Derived from 01 (1025 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 614	02	1132656	08/09/2024	1134418	08/12/2024

Sample	Sample ID	Taken	Time	Received
2323514	Effluent Oxadiazinon	08/07/2024	08:00:00	08/07/2024

Bottle 01 Amber 32 Oz
 Bottle 02 Prepared Bottle: OPXL/OPXS 2 mL Autosampler Vial (Batch 1132656) Volume: 1.00000 mL <== Derived from 01 (1015 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
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Sample	Sample ID	Taken	Time	Received
2323514	Effluent Oxadiazinon	08/07/2024	08:00:00	08/07/2024

Bottle 01 Amber 32 Oz
 Bottle 02 Prepared Bottle: OPXL/OPXS 2 mL Autosampler Vial (Batch 1132656) Volume: 1.00000 mL <== Derived from 01 (1015 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 614	02	1132656	08/09/2024	1134418	08/12/2024

Sample	Sample ID	Taken	Time	Received
2323515	Lagoon/Digester Sludge	08/07/2024	14:00:00	08/07/2024

Bottle 01 Amber 32 Oz
 Bottle 02 Amber 32 Oz
 Bottle 03 Glass 4 oz w/Teflon lined lid
 Bottle 04 Glass 4 oz w/Teflon lined lid
 Bottle 05 Glass 4 oz w/Teflon lined lid
 Bottle 06 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1132429) Volume: 6.00000 mL <== Derived from 05 (0.5 grams)
 Bottle 07 Prepared Bottle: TKN TRAACS Autosampler Vial (Batch 1132551) Volume: 20.00000 mL <== Derived from 04 (1.0 grams)
 Bottle 08 Prepared Bottle: Mercury Preparation for Metals (Batch 1132557) Volume: 50.00000 mL <== Derived from 04 (0.5 grams)
 Bottle 09 Prepared Bottle: 2 mL Glass vial (Batch 1132863) Volume: 50.00000 mL <== Derived from 04 (1.0 grams)
 Bottle 10 Prepared Bottle: ICP Preparation for Metals (Batch 1132984) Volume: 50.00000 mL <== Derived from 01 (5.1 grams)
 Bottle 11 Prepared Bottle: PCBS 2 mL Autosampler Vial (Batch 1133036) Volume: 10.00000 mL <== Derived from 05 (2.0 grams)
 Bottle 12 Prepared Bottle: PCBS 2 mL Autosampler Vial (Batch 1133604) Volume: 10.00000 mL <== Derived from 05 (2 grams)
 Bottle 13 Prepared Bottle: PCBS 2 mL Autosampler Vial (Batch 1133604) Volume: 10.00000 mL <== Derived from 05 (2 grams)
 Bottle 14 Prepared Bottle: PCBS 2 mL Autosampler Vial (Batch 1133604) Volume: 10.00000 mL <== Derived from 05 (2 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 8082	12	1133604	08/15/2024	1134109	08/16/2024
EPA 9056	09	1132863	08/12/2024	1133015	08/12/2024
EPA 6020A	10	1132984	08/13/2024	1133204	08/13/2024
EPA 7471B 2	08	1132557	08/09/2024	1132664	08/09/2024
EPA 350.1 2	06	1132429	08/08/2024	1132687	08/09/2024
EPA 351.2 2	07	1132551	08/09/2024	1132859	08/12/2024
Calculation	07	1132551	08/09/2024	1132859	08/13/2024
SM2540 G-1997 /MOD	01	1132740	08/08/2024	1132740	08/08/2024
EPA 9045D	04	1132715	08/09/2024	1132715	08/09/2024

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TYL1-A

City of Tyler West Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

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Printed: 08/22/2024

RESULTS

Sample Results

2323457 **Grab (1st/3rd)** _____ Received: 08/07/2024
 Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Taken: 08/07/2024 08:00:00

Parameter	Results	Units	RL	Flags	CAS	Bottle
Check Limits						
Completed						
<i>Prepared: 08/22/2024 07:26:00 Analyzed 08/22/2024 07:26:00 WJP</i>						
<i>EPA 420.4 I</i>	<i>Prepared: 1132965</i>	<i>08/13/2024</i>	<i>07:28:31</i>	<i>Analyzed 1133100</i>	<i>08/13/2024</i>	<i>12:47:00 AMB</i>
Phenolics, Total Recoverable	0.014	mg/L	0.005			08
<i>Prepared: 08/07/2024 08:00:00 Analyzed 08/07/2024 08:00:00 Cli</i>						
Hex Cr, Field Preservation	Verified	ug/L	3		18540-29-9	
<i>Prepared: 1132302 08/08/2024 07:05:00 Analyzed 1132302 08/08/2024 07:05:00 ALB</i>						
Hexavalent Chromium	<3.00	ug/L	3.00		18540-29-9	01
<i>Prepared: 1132241 08/08/2024 07:13:04 Analyzed 1132608 08/09/2024 08:57:00 AMB</i>						
Cyanide, total	<0.010	mg/L	0.010			06
<i>Prepared: 08/09/2024 11:57:26 Calculated 08/09/2024 11:57:26 CAL</i>						
Cyanide - Available/Amenable	<0.010	mg/L	0.010			
<i>Prepared: 1132245 08/08/2024 07:19:28 Analyzed 1132612 08/09/2024 08:57:00 AMB</i>						
Cyanide After Chlorination	<0.010	mg/L	0.010			05



TYL1-A

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Printed: 08/22/2024

2323484 VOA Comp (1st/3rd)

Received: 08/07/2024

Non-Potable Water *Collected by:* Client City of Tyler West Pl *PO:*
Taken: 08/06/2024 22:00:00

Sample ID _____
 Sample1: Date _____ Time _____ Tech _____
 Sample2: Date _____ Time _____ Tech _____
 Sample3: Date _____ Time _____ Tech _____
 Sample4: Date _____ Time _____ Tech _____

Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid (8)
 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace) (12)

		<i>Prepared:</i>	08/22/2024	07:26:00	<i>Analyzed</i>	08/22/2024	07:26:00	<i>WJP</i>		
<i>Parameter</i>	<i>Results</i>	<i>Units</i>	<i>RL</i>	<i>Flags</i>	<i>CAS</i>	<i>Bottle</i>				
Check Limits	Completed									
<i>Composite Sample</i>		<i>Prepared:</i>	1132406	08/08/2024	09:09:00	<i>Analyzed</i>	1132406	08/08/2024	09:09:00	<i>CCH</i>
<i>Parameter</i>	<i>Results</i>	<i>Units</i>	<i>RL</i>	<i>Flags</i>	<i>CAS</i>	<i>Bottle</i>				
NELAC Composite VOA vial pre-injection	1/1	ml								04
<i>Composite Sample</i>		<i>Prepared:</i>	1132408	08/08/2024	09:09:00	<i>Analyzed</i>	1132408	08/08/2024	09:09:00	<i>CCH</i>
<i>Parameter</i>	<i>Results</i>	<i>Units</i>	<i>RL</i>	<i>Flags</i>	<i>CAS</i>	<i>Bottle</i>				
NELAC Composite VOA vial pre-injection	1/1	ml								02
<i>EPA 624.1</i>		<i>Prepared:</i>	1132406	08/08/2024	11:34:00	<i>Analyzed</i>	1132589	08/08/2024	11:34:00	<i>MRI</i>
<i>Parameter</i>	<i>Results</i>	<i>Units</i>	<i>RL</i>	<i>Flags</i>	<i>CAS</i>	<i>Bottle</i>				
NELAC Acrolein	<50.0	ug/L	50.0		107-02-8					21
NELAC Acrylonitrile	<50.0	ug/L	50.0		107-13-1					21
<i>EPA 624.1</i>		<i>Prepared:</i>	1132408	08/08/2024	13:04:00	<i>Analyzed</i>	1132590	08/08/2024	13:04:00	<i>MRI</i>
<i>Parameter</i>	<i>Results</i>	<i>Units</i>	<i>RL</i>	<i>Flags</i>	<i>CAS</i>	<i>Bottle</i>				
NELAC 1,1,1-Trichloroethane	<10.0	ug/L	10.0		71-55-6					22
NELAC 1,1,2,2-Tetrachloroethane	<10.0	ug/L	10.0		79-34-5					22
NELAC 1,1,2-Trichloroethane	<10.0	ug/L	10.0		79-00-5					22
NELAC 1,1-Dichloroethane	<10.0	ug/L	10.0		75-34-3					22
NELAC 1,1-Dichloroethylene	<10.0	ug/L	10.0		75-35-4					22
NELAC 1,2-Dibromoethane (EDB)	<10.0	ug/L	10.0		106-93-4					22
NELAC 1,2-Dichloroethane	<10.0	ug/L	10.0		107-06-2					22
NELAC 1,2-Dichloropropane	<10.0	ug/L	10.0		78-87-5					22



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 Tyler, TX 75710

Project
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Printed: 08/22/2024

2323484 VOA Comp (1st/3rd) _____

Received: 08/07/2024

Non-Potable Water *Collected by:* Client City of Tyler West Pl *PO:*
Taken: 08/06/2024 22:00:00

Sample ID _____
 Sample1: Date _____ Time _____ Tech _____
 Sample2: Date _____ Time _____ Tech _____
 Sample3: Date _____ Time _____ Tech _____
 Sample4: Date _____ Time _____ Tech _____

Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid (8)
 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace) (12)

EPA 624.1 *Prepared:* 1132408 08/08/2024 13:04:00 *Analyzed* 1132590 08/08/2024 13:04:00 *MRI*

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	2-Chloroethylvinyl ether	<10.0	ug/L	10.0		110-75-8	22
NELAC	Benzene	<10.0	ug/L	10.0		71-43-2	22
NELAC	Bromodichloromethane	<10.0	ug/L	10.0		75-27-4	22
NELAC	Bromoform	<10.0	ug/L	10.0		75-25-2	22
NELAC	Bromomethane (Methyl Bromi	<50.0	ug/L	50.0		74-83-9	22
NELAC	Carbon Tetrachloride	<2.00	ug/L	2.00		56-23-5	22
NELAC	Chlorobenzene	<10.0	ug/L	10.0		108-90-7	22
NELAC	Chloroethane	<50.0	ug/L	50.0		75-00-3	22
NELAC	Chloroform	143	ug/L	10.0		67-66-3	22
NELAC	Chloromethane (Methyl Chloride)	<50.0	ug/L	50.0		74-87-3	22
NELAC	cis-1,2-Dichloroethylene	<70.0	ug/L	70.0		156-59-2	22
NELAC	cis-1,3-Dichloropropene	<10.0	ug/L	10.0		10061-01-5	22
NELAC	Dibromochloromethane	<10.0	ug/L	10.0		124-48-1	22
NELAC	Dichloromethane	<20.0	ug/L	20.0		75-09-2	22
NELAC	Ethylbenzene	<10.0	ug/L	10.0		100-41-4	22
NELAC	m-Dichlorobenzene (1,3-DCB)	<10.0	ug/L	10.0		541-73-1	22
NELAC	Methyl ethyl ketone (Butanone)	<50.0	ug/L	50.0		78-93-3	22
NELAC	o-Dichlorobenzene (1,2-DCB)	<5.00	ug/L	5.00		95-50-1	22
NELAC	p-Dichlorobenzene (1,4-DCB)	<10.0	ug/L	10.0		106-46-7	22
NELAC	Tetrachloroethylene	<10.0	ug/L	10.0		127-18-4	22
NELAC	Toluene	<10.0	ug/L	10.0		108-88-3	22
NELAC	trans-1,2-Dichloroethylene	<10.0	ug/L	10.0		156-60-5	22
NELAC	trans-1,3-Dichloropropene	<10.0	ug/L	10.0		10061-02-6	22
NELAC	Trichloroethylene	<10.0	ug/L	10.0		79-01-6	22
NELAC	Vinyl chloride	<10.0	ug/L	10.0		75-01-4	22

EPA 624.1 *Prepared:* 1132408 08/09/2024 13:34:08 *Calculated* 1132590 08/09/2024 13:34:08 *CAL*

	Parameter	Results	Units	RL	Flags	CAS	Bottle
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TYL1-A

City of Tyler West Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

Project
1113566

Printed: 08/22/2024

2323484 VOA Comp (1st/3rd) _____

Received: 08/07/2024

Non-Potable Water *Collected by:* Client City of Tyler West Pl *PO:*
Taken: 08/06/2024 22:00:00

Sample ID _____

Sample1: Date _____ Time _____ Tech _____
 Sample2: Date _____ Time _____ Tech _____
 Sample3: Date _____ Time _____ Tech _____
 Sample4: Date _____ Time _____ Tech _____

Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid (8)

Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace) (12)

EPA 624.1 *Prepared:* 1132408 08/09/2024 13:34:08 *Calculated* 1132590 08/09/2024 13:34:08 *CAL*

Parameter	Results	Units	RL	Flags	CAS	Bottle
NECAC Trihalomethanes	0.14341	mg/L	0.010			22

2323493 Composite (1st/3rd) _____ COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water *Collected by:* Client City of Tyler West Pl *PO:*
 Composite Stop 08:00 8/7/24 *Taken:* 08/07/2024 08:00:00

Prepared: 08/22/2024 07:26:00 *Analyzed* 08/22/2024 07:26:00 *WJP*

Parameter	Results	Units	RL	Flags	CAS	Bottle
Check Limits	Completed					

ASTM D7065-11 *Prepared:* 1133467 08/14/2024 12:00:00 *Analyzed* 1133861 08/15/2024 22:30:00 *DWL*

Parameter	Results	Units	RL	Flags	CAS	Bottle
Nonylphenol	12.2	ug/L	33.6	JS	25154-52-3	22

Calculation *Prepared:* 08/09/2024 10:04:50 *Calculated* 08/09/2024 10:04:50 *CAL*

Parameter	Results	Units	RL	Flags	CAS	Bottle
NECAC Trivalent Chromium	<0.003	mg/L	0.003		16065-83-1	

EPA 200.8 5.4 *Prepared:* 1132414 08/08/2024 12:15:00 *Analyzed* 1132548 08/08/2024 18:31:00 *JC2*

Parameter	Results	Units	RL	Flags	CAS	Bottle
NECAC Aluminum, Total	3.90	mg/L	0.005		7429-90-5	14



TYL1-A

City of Tyler West Plant
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Printed: 08/22/2024

2323493 Composite (1st/3rd) _____ COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

EPA 200.8 5.4 Prepared: 1132414 08/08/2024 12:15:00 Analyzed 1132548 08/08/2024 18:31:00 JC2

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Antimony, Total	<0.005	mg/L	0.005		7440-36-0	14
NELAC Arsenic, Total	0.00837	mg/L	0.001		7440-38-2	14
NELAC Barium, Total	0.0812	mg/L	0.003		7440-39-3	14
NELAC Beryllium, Total	<0.0005	mg/L	0.0005		7440-41-7	14
NELAC Cadmium, Total	<0.001	mg/L	0.001		7440-43-9	14
NELAC Chromium, Total	<0.003	mg/L	0.003		7440-47-3	14
NELAC Copper, Total	0.0107	mg/L	0.002		7440-50-8	14
NELAC Lead, Total	0.000956	mg/L	0.0005		7439-92-1	14
NELAC Nickel, Total	0.00332	mg/L	0.002		7440-02-0	14
NELAC Silver, Total	<0.0005	mg/L	0.0005		7440-22-4	14
NELAC Zinc, Total	0.0462	mg/L	0.005		7440-66-6	14

EPA 200.8 5.4 Prepared: 1132414 08/08/2024 12:15:00 Analyzed 1132746 08/09/2024 12:37:00 JC2

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Selenium, Total	<0.005	mg/L	0.005		7782-49-2	14

EPA 200.8 5.4 Prepared: 1132414 08/08/2024 12:15:00 Analyzed 1132905 08/12/2024 13:18:00 JC2

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Thallium, Total	<0.0005	mg/L	0.0005		7440-28-0	14

EPA 245.7 2 Prepared: 1133729 08/16/2024 09:00:00 Analyzed 1133870 08/16/2024 12:12:00 MPI

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Mercury, Total (low level)	<5.00	ng/L	5.00		7439-97-6	23

EPA 300.0 2.1 Prepared: 1132790 08/08/2024 15:38:00 Analyzed 1132790 08/08/2024 15:38:00 NAZ

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Fluoride	3.28	mg/L	0.500			01
NELAC Nitrate-Nitrogen Total	<0.1	mg/L	0.1		14797-55-8	01

EPA 604.1 Prepared: 1132983 08/12/2024 15:00:00 Analyzed 1133537 08/14/2024 00:57:00 BRU

Parameter	Results	Units	RL	Flags	CAS	Bottle
z Hexachlorophene	<2.51	ug/L	2.51		70-30-4	21



TYL1-A

City of Tyler West Plant
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Project
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Printed: 08/22/2024

2323493 Composite (1st/3rd) _____ COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

EPA 608.3 Prepared: 1132655 08/09/2024 14:00:00 Analyzed 1134122 08/14/2024 02:00:00 KAP

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC 4,4-DDD	<0.100	ug/L	0.100	X	72-54-8	17
NELAC 4,4-DDE	<0.100	ug/L	0.100		72-55-9	17
NELAC 4,4-DDT	<0.020	ug/L	0.020	M	50-29-3	17
NELAC Aldrin	<0.010	ug/L	0.010		309-00-2	17
NELAC Alpha-BHC(hexachlorocyclohexane)	<0.050	ug/L	0.050		319-84-6	17
NELAC Beta-BHC(hexachlorocyclohexane)	<0.050	ug/L	0.050		319-85-7	17
NELAC Chlordane	<0.200	ug/L	0.200		57-74-9	17
NELAC Delta-BHC(hexachlorocyclohexane)	<0.050	ug/L	0.050		319-86-8	17
NELAC Dieldrin	<0.020	ug/L	0.020		60-57-1	17
NELAC Endosulfan I (alpha)	<0.010	ug/L	0.010		959-98-8	17
NELAC Endosulfan II (beta)	<0.020	ug/L	0.020	JM	33213-65-9	17
NELAC Endosulfan sulfate	<0.100	ug/L	0.100	X	1031-07-8	17
NELAC Endrin	<0.020	ug/L	0.020		72-20-8	17
NELAC Endrin aldehyde	<0.100	ug/L	0.100		7421-93-4	17
NELAC Gamma-BHC(Lindane)	<0.050	ug/L	0.050		58-89-9	17
NELAC Heptachlor	0.0532	ug/L	0.010		76-44-8	17
NELAC Heptachlor epoxide	<0.010	ug/L	0.010		1024-57-3	17
z Kelthane (Dicofol)	<1.00	ug/L	1.00	XS	115-32-2	17
NELAC Methoxychlor	<2.00	ug/L	2.00		72-43-5	17
z Mirex	0.0225	ug/L	0.020		2385-85-5	17
NELAC Toxaphene	<0.300	ug/L	0.300		8001-35-2	17

EPA 608.3 Prepared: 1132657 08/09/2024 14:00:00 Analyzed 1133583 08/14/2024 02:00:00 KAP

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC PCB-1016	<0.200	ug/L	0.200		12674-11-2	19
NELAC PCB-1221	<0.200	ug/L	0.200		11104-28-2	19
NELAC PCB-1232	<0.200	ug/L	0.200		11141-16-5	19
NELAC PCB-1242	<0.200	ug/L	0.200		53469-21-9	19
NELAC PCB-1248	<0.200	ug/L	0.200		12672-29-6	19
NELAC PCB-1254	<0.200	ug/L	0.200		11097-69-1	19
NELAC PCB-1260	<0.200	ug/L	0.200		11096-82-5	19
NELAC PCB-1262	<0.202	ug/L	0.202		37324-23-5	19
NELAC PCB-1268	<0.202	ug/L	0.202		11100-14-4	19



TYL1-A

City of Tyler West Plant
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Project
1113566

Printed: 08/22/2024

2323493 Composite (1st/3rd) COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

EPA 614 Prepared: 1132656 08/09/2024 14:00:00 Analyzed 1134416 08/12/2024 19:39:00 KAP

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Azinphos-methyl (Guthion)	<0.100	ug/L	0.100	X	86-50-0	18
z Chlorpyrifos	<0.050	ug/L	0.050		2921-88-2	18
NELAC Demeton	<0.200	ug/L	0.200	X	8065-48-3	18
NELAC Diazinon	<0.500	ug/L	0.500	X	333-41-5	18
NELAC Malathion	<0.100	ug/L	0.100		121-75-5	18
NELAC Parathion, ethyl	<0.100	ug/L	0.100	X	56-38-2	18
NELAC Parathion, methyl	<0.100	ug/L	0.100		298-00-0	18

EPA 615 Prepared: 1132861 08/12/2024 14:00:00 Analyzed 1134021 08/17/2024 08:02:00 KAP

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC 2,4 Dichlorophenoxyacetic acid	<0.700	ug/L	0.700	S	94-75-7	20
NELAC 2,4,5-TP (Silvex)	<0.300	ug/L	0.300	S	93-72-1	20

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1132901 08/09/2024 23:35:00 PMI

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC 1,2,4,5-Tetrachlorobenzene	<20.0	ug/L	20.0		95-94-3	15
NELAC 1,2,4-Trichlorobenzene	<10.0	ug/L	10.0		120-82-1	15
NELAC 1,2-Dichlorobenzene	<10.0	ug/L	10.0		95-50-1	15
NELAC 1,2-DPH (as azobenzene)	<20.0	ug/L	20.0		122-66-7	15
NELAC 1,3-Dichlorobenzene	<10.0	ug/L	10.0		541-73-1	15
NELAC 1,4-Dichlorobenzene	<10.0	ug/L	10.0		106-46-7	15
NELAC 2,4,5-Trichlorophenol	<50.0	ug/L	50.0		95-95-4	15
NELAC 2,4,6-Trichlorophenol	<10.0	ug/L	10.0		88-06-2	15
NELAC 2,4-Dichlorophenol	<10.0	ug/L	10.0		120-83-2	15
NELAC 2,4-Dimethylphenol	<10.0	ug/L	10.0		105-67-9	15
NELAC 2,4-Dinitrophenol	<50.0	ug/L	50.0		51-28-5	15
NELAC 2,4-Dinitrotoluene	<10.0	ug/L	10.0		121-14-2	15
NELAC 2,6-Dinitrotoluene	<10.0	ug/L	10.0		606-20-2	15
NELAC 2-Chloronaphthalene	<10.0	ug/L	10.0		91-58-7	15
NELAC 2-Chlorophenol	<10.0	ug/L	10.0		95-57-8	15
NELAC 2-Methylphenol (o-Cresol)	<10.0	ug/L	10.0		95-48-7	15
NELAC 2-Nitrophenol	<20.0	ug/L	20.0		88-75-5	15
NELAC 3&4-Methylphenol (m&p-Cresol)	27.6	ug/L	10.0		MEPH34	15



TYL1-A

City of Tyler West Plant
 Ryan Peden
 511 W. Locust
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 Tyler, TX 75710

Project
1113566

Printed: 08/22/2024

2323493 Composite (1st/3rd) COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1132901 08/09/2024 23:35:00 PMI

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC 3,3'-Dichlorobenzidine	<5.00	ug/L	5.00		91-94-1	15
NELAC 4,6-Dinitro-2-methylphenol	<20.0	ug/L	20.0		534-52-1	15
NELAC 4-Bromophenyl phenyl ether	<10.0	ug/L	10.0		101-55-3	15
NELAC 4-Chlorophenyl phenyl ethe	<10.0	ug/L	10.0		7005-72-3	15
NELAC 4-Nitrophenol	<50.0	ug/L	50.0		100-02-7	15
NELAC Acenaphthene	<10.0	ug/L	10.0		83-32-9	15
NELAC Acenaphthylene	<10.0	ug/L	10.0		208-96-8	15
NELAC Anthracene	<10.0	ug/L	10.0		120-12-7	15
NELAC Benzidine	<50.0	ug/L	50.0		92-87-5	15
NELAC Benzo(a)anthracene	<5.00	ug/L	5.00		56-55-3	15
NELAC Benzo(a)pyrene	<5.00	ug/L	5.00		50-32-8	15
NELAC Benzo(b)fluoranthene	<10.0	ug/L	10.0		205-99-2	15
NELAC Benzo(ghi)perylene	<20.0	ug/L	20.0		191-24-2	15
NELAC Benzo(k)fluoranthene	<5.00	ug/L	5.00		207-08-9	15
NELAC Benzyl Butyl phthalate	<10.0	ug/L	10.0		85-68-7	15
NELAC Bis(2-chloroethoxy)methane	<10.0	ug/L	10.0		111-91-1	15
NELAC Bis(2-chloroethyl)ether	<10.0	ug/L	10.0		111-44-4	15
NELAC Bis(2-chloroisopropyl)ether	<10.0	ug/L	10.0		108-60-1	15
NELAC Bis(2-ethylhexyl)phthalate	<10.0	ug/L	10.0		117-81-7	15
NELAC Chrysene (Benzo(a)phenanthrene)	<5.00	ug/L	5.00		218-01-9	15
NELAC Dibenz(a,h)anthracene	<5.00	ug/L	5.00		53-70-3	15
NELAC Diethyl phthalate	<10.0	ug/L	10.0		84-66-2	15
NELAC Dimethyl phthalate	<10.0	ug/L	10.0		131-11-3	15
NELAC Di-n-butylphthalate	<10.0	ug/L	10.0		84-74-2	15
NELAC Di-n-octylphthalate	<10.0	ug/L	10.0	X	117-84-0	15
NELAC Fluoranthene(Benzo(j,k)fluorene)	<10.0	ug/L	10.0		206-44-0	15
NELAC Fluorene	<10.0	ug/L	10.0		86-73-7	15
NELAC Hexachlorobenzene	<5.00	ug/L	5.00		118-74-1	15
NELAC Hexachlorobutadiene	<10.0	ug/L	10.0		87-68-3	15
NELAC Hexachlorocyclopentadiene	<10.0	ug/L	10.0		77-47-4	15
NELAC Hexachloroethane	<20.0	ug/L	20.0	S	67-72-1	15
NELAC Indeno(1,2,3-cd)pyrene	<5.00	ug/L	5.00		193-39-5	15
NELAC Isophorone	<10.0	ug/L	10.0		78-59-1	15
NELAC Naphthalene	<10.0	ug/L	10.0		91-20-3	15
NELAC Nitrobenzene	<10.0	ug/L	10.0		98-95-3	15
NELAC n-Nitrosodiethylamine	<20.0	ug/L	20.0		55-18-5	15



TYL1-A

City of Tyler West Plant
 Ryan Peden
 511 W. Locust
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 Tyler, TX 75710

Project
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Printed: 08/22/2024

2323493 Composite (1st/3rd) COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1132901 08/09/2024 23:35:00 PMI

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC N-Nitrosodimethylamine	<50.0	ug/L	50.0		62-75-9	15
NELAC n-Nitroso-di-n-butylamine	<20.0	ug/L	20.0		924-16-3	15
NELAC N-Nitrosodi-n-propylamine	<20.0	ug/L	20.0		621-64-7	15
NELAC N-Nitrosodiphenylamine (as DPA)	<20.0	ug/L	20.0		86-30-6	15
NELAC p-Chloro-m-Cresol (4-Chloro-3-me	<10.0	ug/L	10.0		59-50-7	15
NELAC Pentachlorobenzene	<20.0	ug/L	20.0		608-93-5	15
NELAC Pentachlorophenol	<5.00	ug/L	5.00		87-86-5	15
NELAC Phenanthrene	<10.0	ug/L	10.0		85-01-8	15
NELAC Phenol	<10.0	ug/L	10.0		108-95-2	15
NELAC Pyrene	<10.0	ug/L	10.0		129-00-0	15
NELAC Pyridine	<20.0	ug/L	20.0		110-86-1	15

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Calculated 1132901 08/13/2024 09:45:32 CAL

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Cresols Total	27.6	ug/L	10.0		1319-77-3, etc.	15

EPA 632 Prepared: 1132654 08/09/2024 14:00:00 Analyzed 1133653 08/12/2024 22:07:00 BRU

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Carbaryl (Sevin)	<2.52	ug/L	2.52		63-25-2	16
z Diuron	<0.090	ug/L	0.090		330-54-1	16

SM 3500-Cr B-2011 Prepared: 08/07/2024 08:00:00 Analyzed 08/07/2024 08:00:00 Cli

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Hex Cr, Field Preservation	Verified	ug/L	3		18540-29-9	

SM 3500-Cr B-2011 Prepared: 1132302 08/08/2024 07:05:00 Analyzed 1132302 08/08/2024 07:05:00 ALB

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Hexavalent Chromium	<3.00	ug/L	3.00		18540-29-9	01

SM 4500-P E-2011 Prepared: 1133525 08/15/2024 10:33:00 Analyzed 1133525 08/15/2024 10:33:00 SRJ

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Phosphorus (as P), total	6.65	mg/L	0.600		7723-14-0	13



TYL1-A

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 Tyler, TX 75710

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Printed: 08/22/2024

2323503 Table V/Comp (1st/3rd) _____ COMP 8/6 1000-8/7 0800

Received: 08/07/2024

Non-Potable Water Collected by: Client SPL Kilgore PO:
 Composite Stop 08:00 8/7/24 Taken: 08/07/2024 08:00:00

Prepared: 08/22/2024 07:26:00 Analyzed 08/22/2024 07:26:00 WJP

Parameter	Results	Units	RL	Flags	CAS	Bottle
Check Limits	Completed					

EPA 1667 Prepared: 1132304 08/08/2024 06:45:00 Analyzed 1132712 08/08/2024 18:32:00 BRU

Parameter	Results	Units	RL	Flags	CAS	Bottle
Formaldehyde	<0.050	mg/L	0.050		50-00-0	04

EPA 200.8 5.4 Prepared: 1132414 08/08/2024 12:15:00 Analyzed 1132548 08/08/2024 18:35:00 JC2

Parameter	Results	Units	RL	Flags	CAS	Bottle
Molybdenum, Total	0.00187	mg/L	0.001		7439-98-7	05

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1133099 08/12/2024 18:09:00 DWL

Parameter	Results	Units	RL	Flags	CAS	Bottle
Resorcinol	<100	ug/L	100		108-46-3	06

2323507 Table V/Grab(1st/3rd) _____

Received: 08/07/2024

Non-Potable Water Collected by: Client City of Tyler West Pl PO:
 Taken: 08/07/2024 08:00:00

Prepared: 08/22/2024 07:26:00 Analyzed 08/22/2024 07:26:00 WJP

Parameter	Results	Units	RL	Flags	CAS	Bottle
Check Limits	Completed					

EPA 624.1 Prepared: 1132591 08/08/2024 13:49:00 Analyzed 1132591 08/08/2024 13:49:00 MRI

Parameter	Results	Units	RL	Flags	CAS	Bottle
m- and p-Xylene	<5.00	ug/L	5.00		ARC-mpXyl	03
o-Xylene	<5.00	ug/L	5.00		95-47-6	03



TYL1-A

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Project
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Printed: 08/22/2024

2323507 Table V/Grab(1st/3rd)

Received: 08/07/2024

Non-Potable Water
 Collected by: Client
 Taken: 08/07/2024
 City of Tyler West Pl
 PO:
 08:00:00

EPA 624.1		Prepared: 1132591 08/09/2024 13:34:09			Calculated 1132591 08/09/2024 13:34:09			CAL
Parameter	Results	Units	RL	Flags	CAS	Bottle		
NELAC Xylenes, Total	<0.100	ug/L	10.0		1330-20-7	03		

2323513 Influent Oxadiazinon COMP 8/6 1000- 8/7 0800

Received: 08/07/2024

Non-Potable Water
 Composite Stop 08:00 8/7/24
 Collected by: Client
 Taken: 08/07/2024
 City of Tyler West Pl
 PO:
 08:00:00

EPA 614		Prepared: 1132656 08/09/2024 14:00:00			Analyzed 1134418 08/12/2024 20:32:00			KAP
Parameter	Results	Units	RL	Flags	CAS	Bottle		
NELAC Diazinon	<0.100	ug/L	0.100		333-41-5	02		
NELAC Oxo-diazinon	<0.0488	ug/L	0.0488	X		02		

2323514 Effluent Oxadiazinon COMP 8/6 1000-8/7 0800

Received: 08/07/2024

Non-Potable Water
 Composite Stop 08:00 8/7/24
 Collected by: Client
 Taken: 08/07/2024
 City of Tyler West Pl
 PO:
 08:00:00

EPA 614		Prepared: 1132656 08/09/2024 14:00:00			Analyzed 1134418 08/12/2024 20:58:00			KAP
Parameter	Results	Units	RL	Flags	CAS	Bottle		
NELAC Diazinon	<0.100	ug/L	0.100		333-41-5	02		
NELAC Oxo-diazinon	<0.0493	ug/L	0.0493	X		02		

2323515 Lagoon/Digester Sludge

Received: 08/07/2024

Solid & Chemical Materials
 Collected by: Client
 Taken: 08/07/2024
 City of Tyler West Pl
 PO:
 14:00:00



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2323515 Lagoon/Digester Sludge

Received: 08/07/2024

Solid & Chemical Materials Collected by: Client City of Tyler West Pl PO:
 Taken: 08/07/2024 14:00:00

Parameter	Results	Units	RL	Flags	CAS	Bottle
Check Limits	Completed					
Check Limits	Completed					

Calculation Prepared: 1132551 08/09/2024 07:04:43 Analyzed 1132859 08/13/2024 12:58:00 CAL

Parameter	Results	Units	RL	Flags	CAS	Bottle
Total Nitrogen (as N)	18300 *	mg/kg	178			07
* Dry Weight Basis						

EPA 350.1.2 Prepared: 1132429 08/08/2024 14:33:54 Analyzed 1132687 08/09/2024 05:55:00 AMB

Parameter	Results	Units	RL	Flags	CAS	Bottle
Ammonia Nitrogen	6450 *	mg/kg	54.1			06
* Dry Weight Basis						

EPA 351.2.2 Prepared: 1132551 08/09/2024 07:04:43 Analyzed 1132859 08/12/2024 12:09:00 AMB

Parameter	Results	Units	RL	Flags	CAS	Bottle
Total Kjeldahl Nitrogen	18300 *	mg/kg	178		7727-37-9	07
* Dry Weight Basis						

EPA 6020A Prepared: 1132984 08/13/2024 10:30:00 Analyzed 1133204 08/13/2024 18:11:00 JC2

Parameter	Results	Units	RL	Flags	CAS	Bottle
Arsenic, Total	<41.0	mg/kg	41.0		7440-38-2	10
Cadmium, Total	<39.0	mg/kg	39.0		7440-43-9	10
Chromium, Total	<27000	mg/kg	27000		7440-47-3	10
Copper, Total	301 *	mg/kg	0.446		7440-50-8	10
Lead, Total	<300	mg/kg	300		7439-92-1	10
Molybdenum, Total	<49.1	mg/kg	49.1		7439-98-7	10
Nickel, Total	22.8 *	mg/kg	0.446		7440-02-0	10
Selenium, Total	<100	mg/kg	100		7782-49-2	10
Zinc, Total	<2800	mg/kg	2800		7440-66-6	10
* Dry Weight Basis						



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2323515 Lagoon/Digester Sludge

Received: 08/07/2024

Solid & Chemical Materials Collected by: Client City of Tyler West Pl PO:
 Taken: 08/07/2024 14:00:00

EPA 7471B 2 Prepared: 1132557 08/09/2024 07:30:00 Analyzed 1132664 08/09/2024 10:43:00 CAS

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Mercury	0.964 *	mg/kg	0.200		7439-97-6	08

* Dry Weight Basis

EPA 8082 Prepared: 1133604 08/15/2024 15:33:17 Analyzed 1134109 08/16/2024 17:12:00 KAP

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC PCB-1016	<1000	ug/kg	1000		12674-11-2	12
NELAC PCB-1221	<1000	ug/kg	1000		11104-28-2	12
NELAC PCB-1232	<1000	ug/kg	1000		11141-16-5	12
NELAC PCB-1242	<1000	ug/kg	1000		53469-21-9	12
NELAC PCB-1248	<1000	ug/kg	1000		12672-29-6	12
NELAC PCB-1254	<1000	ug/kg	1000		11097-69-1	12
NELAC PCB-1260	<1000	ug/kg	1000		11096-82-5	12
NELAC PCB-1262	<1000	ug/kg	1000		37324-23-5	12
NELAC PCB-1268	<1000	ug/kg	1000		11100-14-4	12

EPA 9045D Prepared: 1132715 08/09/2024 14:01:00 Analyzed 1132715 08/09/2024 14:01:00 SRJ

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Soil pH Measured in Water	8.0 @ 22 C	SU	2.00			04

EPA 9056 Prepared: 1132863 08/12/2024 14:21:16 Analyzed 1133015 08/12/2024 21:15:00 NAZ

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Nitrate-Nitrogen	<10.1 *	mg/kg	10.1		14797-55-8	09

* Dry Weight Basis

SM2540 G-1997 /MOD Prepared: 1132740 08/08/2024 15:54:00 Analyzed 1132740 08/08/2024 15:54:00 BEK

Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC Total Solids for Dry Wt Conversi	11.0	%	0.010			01

Sample Preparation



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2323457 Grab (1st/3rd) _____

Received: 08/07/2024

08/07/2024

EPA 420.4 I Prepared: 1132965 08/13/2024 07:28:31 Analyzed 1132965 08/13/2024 07:28:31 MEG

NELAC Phenol Distillation 6/6 ml 04

SM 4500-CN⁻C-2016 Prepared: 1132241 08/08/2024 07:13:04 Analyzed 1132241 08/08/2024 07:13:04 MEG

NELAC Cyanide Distillation 10/5 ml A 03

SM 4500-CN⁻C-2016 Prepared: 1132245 08/08/2024 07:19:28 Analyzed 1132245 08/08/2024 07:19:28 MEG

NELAC CN Dist After Chlorination 10/5 ml 03

2323484 VOA Comp (1st/3rd) _____

Received: 08/07/2024

08/06/2024

EPA 624.1 Prepared: 1132406 08/08/2024 11:34:00 Analyzed 1132589 08/08/2024 11:34:00 MRI

NELAC Acrolein/Acrylonitrile Exp. Entered 21

EPA 624.1 Prepared: 1132408 08/08/2024 13:04:00 Analyzed 1132590 08/08/2024 13:04:00 MRI

TTO VOA 40 CFR Pt 122 Table II Entered 22

2323493 Composite (1st/3rd) _____

COMP 8/6 0800-8/7 0800

Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024



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Printed: 08/22/2024

2323493	Composite (1st/3rd)		COMP 8/6 0800-8/7 0800						Received: 08/07/2024	
Composite Stop 08:00	8/7/24		08/07/2024							
			Prepared: 08/08/2024	10:21:31	Calculated	08/08/2024	10:21:31		CAL	
z	Environmental Fee (per Project)		Verified							
z	LL Mercury Test Prep		Verified							
	ASTM D7065-11		Prepared: 1133467	08/14/2024	12:00:00	Analyzed	1133861	08/15/2024	22:30:00	DWL
z	Nonyl Phenol Expansion		Entered						22	
	EPA 200.2 2.8		Prepared: 1132414	08/08/2024	12:15:00	Analyzed	1132414	08/08/2024	12:15:00	TES
z	Liquid Metals Digestion	50/50	ml						12	
	EPA 245.7 2		Prepared: 1133729	08/16/2024	09:00:00	Analyzed	1133729	08/16/2024	09:00:00	MPI
NELAC	Low Level Mercury Liquid Metals	50/47	ml						02	
	EPA 604.1		Prepared: 1132983	08/12/2024	15:00:00	Analyzed	1132983	08/12/2024	15:00:00	MCC
	Hexachlorophene Extraction	5/995	ml						08	
	EPA 604.1		Prepared: 1132983	08/12/2024	15:00:00	Analyzed	1133537	08/14/2024	00:57:00	BRU
	Hexachlorophene Expansion	Entered						70-30-4	21	
	EPA 608.3		Prepared: 1132655	08/09/2024	14:00:00	Analyzed	1132655	08/09/2024	14:00:00	CRS
	Liquid-Liquid Extr. W/Hex Ex	1/991	ml						03	
	EPA 608.3		Prepared: 1132655	08/09/2024	14:00:00	Analyzed	1134122	08/14/2024	02:00:00	KAP



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2323493 Composite (1st/3rd) _____ COMP 8/6 0800-8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 608.3	Prepared: 1132655	08/09/2024	14:00:00	Analyzed 1134122	08/14/2024	02:00:00	KAP
Pesticides by GC	Entered						17
EPA 608.3	Prepared: 1132656	08/09/2024	14:00:00	Analyzed 1132656	08/09/2024	14:00:00	CRS
Solvent Extraction	1/991	ml					03
EPA 608.3	Prepared: 1132657	08/09/2024	14:00:00	Analyzed 1132657	08/09/2024	14:00:00	CRS
PCB Liq-Liq Extr. W/Hex Exch.	1/991	ml					03
EPA 608.3	Prepared: 1132657	08/09/2024	14:00:00	Analyzed 1133583	08/14/2024	02:00:00	KAP
NELAC Polychlorinated Biphenyls	Entered						19
EPA 614	Prepared: 1132656	08/09/2024	14:00:00	Analyzed 1134416	08/12/2024	19:39:00	KAP
Organophosphorous Pesticides	Entered						18
EPA 615	Prepared: 1132861	08/12/2024	14:00:00	Analyzed 1132861	08/12/2024	14:00:00	MCC
NELAC Esterification of Sample	10/995	ml					06
EPA 615	Prepared: 1132861	08/12/2024	14:00:00	Analyzed 1134021	08/17/2024	08:02:00	KAP
NELAC Herbicides by GC	Entered						20
EPA 625.1	Prepared: 1132456	08/08/2024	15:00:00	Analyzed 1132456	08/08/2024	15:00:00	CRS
Liquid-Liquid Extraction, BNA	1/1015	ml					04



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2323493 Composite (1st/3rd) _____ COMP 8/6 0800-8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1132901 08/09/2024 23:35:00 PMI

TTO ABN 40 CFR Pt 122 Table II Entered 15

EPA 625.1 Prepared: 1133467 08/14/2024 12:00:00 Analyzed 1133467 08/14/2024 12:00:00 MCC

Nonylphenol Liq-Liq Extract 1/894 ml 10

EPA 632 Prepared: 1132654 08/09/2024 14:00:00 Analyzed 1132654 08/09/2024 14:00:00 CRS

Liquid-Liquid Extr. W/Hex Ex 1/991 ml 03

EPA 632 Prepared: 1132654 08/09/2024 14:00:00 Analyzed 1133653 08/12/2024 22:07:00 BRU

Carbaryl/Diuron Entered 16

2323503 Table V/Comp (1st/3rd) _____ COMP 8/6 1000-8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 1667 Prepared: 1132304 08/08/2024 06:45:00 Analyzed 1132304 08/08/2024 06:45:00 CRS

8315 Extraction Liquid Aldehydes 10/100 ml 01

EPA 1667 Prepared: 1132304 08/08/2024 06:45:00 Analyzed 1132712 08/08/2024 18:32:00 BRU

Formaldehyde Expansion Entered 04

EPA 200.2 2.8 Prepared: 1132414 08/08/2024 12:15:00 Analyzed 1132414 08/08/2024 12:15:00 TES

Liquid Metals Digestion 50/50 ml 03



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Printed: 08/22/2024

2323503 Table V/Comp (1st/3rd) _____ COMP 8/6 1000-8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1132456 08/08/2024 15:00:00 CRS

Liquid-Liquid Extraction, BNA 1/1032 ml 02

EPA 625.1 Prepared: 1132456 08/08/2024 15:00:00 Analyzed 1133099 08/12/2024 18:09:00 DWL

Resorcinol Expansion Entered 06

2323507 Table V/Grab(1st/3rd) _____ Received: 08/07/2024

08/07/2024

EPA 624.1 Prepared: 1132591 08/08/2024 13:49:00 Analyzed 1132591 08/08/2024 13:49:00 MRI

Xylene Expansion (GC/MS) Entered 03

2323513 Influent Oxadiazinon COMP 8/6 1000- 8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 608.3 Prepared: 1132656 08/09/2024 14:00:00 Analyzed 1132656 08/09/2024 14:00:00 CRS

Solvent Extraction 1/1025 ml 01

EPA 614 Prepared: 1132656 08/09/2024 14:00:00 Analyzed 1134418 08/12/2024 20:32:00 KAP

Diazinon/Oxadiazinon Exp. Entered 02



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2323514 Effluent Oxadiazinon COMP 8/6 1000-8/7 0800 Received: 08/07/2024

Composite Stop 08:00 8/7/24 08/07/2024

EPA 608.3 Prepared: 1132656 08/09/2024 14:00:00 Analyzed 1132656 08/09/2024 14:00:00 CRS

Solvent Extraction 1/1015 ml 01

EPA 614 Prepared: 1132656 08/09/2024 14:00:00 Analyzed 1134418 08/12/2024 20:58:00 KAP

NELAC **Diazinon/Oxadiazinon Exp.** Entered 02

2323515 Lagoon/Digester Sludge Received: 08/07/2024

08/07/2024

Calculation Prepared: 08/20/2024 06:43:52 Calculated 08/20/2024 06:43:52 CAL

As Received to Dry Weight Basis Calculated

EPA 200.2 2.8 Prepared: 1132984 08/13/2024 10:30:00 Analyzed 1132984 08/13/2024 10:30:00 TES

NELAC **Solid Metals Digestion** 50/5.0962 grams 01

EPA 350.1 2 Prepared: 1132429 08/08/2024 14:33:54 Analyzed 1132429 08/08/2024 14:33:54 SRJ

NELAC **Ammonia Distillation** 6/0.5045 grams 05

EPA 351.2 2 Prepared: 1132551 08/09/2024 07:04:43 Analyzed 1132551 08/09/2024 07:04:43 MEG

NELAC **TKN Block Digestion** 20/1.0204 grams 04



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2323515 Lagoon/Digester Sludge

Received: 08/07/2024

08/07/2024

EPA 3550B	Prepared: 1133036 08/13/2024 12:06:07	Analyzed 1133036 08/13/2024 12:06:07	PEV
NELAC PCB Total Sonic Extr. W/Hex Exch	10/2.02 grams		05
EPA 3550B	Prepared: 1133604 08/15/2024 15:33:17	Analyzed 1133604 08/15/2024 15:33:17	PEV
NELAC PCB Total Sonic Extr. W/Hex Exch	10/2.0 grams		05
EPA 7471B	Prepared: 1132557 08/09/2024 07:30:00	Analyzed 1132557 08/09/2024 07:30:00	ALB
NELAC Solid Metals Digestion Hg	50/0.5128 grams		04
EPA 8082	Prepared: 1133604 08/15/2024 15:33:17	Analyzed 1134109 08/16/2024 17:12:00	KAP
NELAC Polychlorinated Biphenyls	Entered		12
EPA 9056	Prepared: 1132863 08/12/2024 14:21:16	Analyzed 1132863 08/12/2024 14:21:16	PEV
Water Extract-Ion Chromatography	50/1.02 grams		04
SM 2540 G-1997	Prepared: 1132473 08/08/2024 15:54:00	Analyzed 1132473 08/08/2024 15:54:00	BEK
NELAC Total Solids Start Code	Started		



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Qualifiers:

J - Analyte detected below quantitation limit
A - Lab pH adjusted per method prior to analysis
S - Standard reads lower than desired
M - High reporting level resulting from matrix interference.
X - Standard reads higher than desired.

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc. - Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

(N)ELAC - Covered in our NELAC scope of accreditation
z -- Not covered by our NELAC scope of accreditation

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of SPL Kilgore. Unless otherwise specified, these test results meet the requirements of NELAC.

RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.



Bill Peery, MS, VP Technical Services



QUALITY CONTROL



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Analytical Set **1132608**

SM 4500-CN⁻ E-2016

Blank										
Parameter	PrepSet	Reading	MDL	MQL	Units	File				
Cyanide, total	1132241	ND	0.00238	0.005	mg/L	126640918				
CCV										
Parameter		Reading	Known	Units	Recover%	Limits%	File			
Cyanide, total		0.494	0.500	mg/L	98.8	90.0 - 110	126640917			
Cyanide, total		0.494	0.500	mg/L	98.8	90.0 - 110	126640927			
Cyanide, total		0.495	0.500	mg/L	99.0	90.0 - 110	126640938			
Cyanide, total		0.496	0.500	mg/L	99.2	90.0 - 110	126640941			
Cyanide, total		0.497	0.500	mg/L	99.4	90.0 - 110	126640942			
Cyanide, total		0.498	0.500	mg/L	99.6	90.0 - 110	126640943			
Duplicate										
Parameter	Sample	Result	Unknown	Unit	RPD	Limit%				
Cyanide, total	2322828	0.0116	0.0102	mg/L	12.8	20.0				
Cyanide, total	2322952	0.0062	0.0074	mg/L	17.6	20.0				
ICV										
Parameter		Reading	Known	Units	Recover%	Limits%	File			
Cyanide, total		0.205	0.200	mg/L	102	90.0 - 110	126640916			
LCS Dup										
Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Cyanide, total	1132241	0.386	0.375	0.400	90.0 - 110	96.5	93.8	mg/L	2.89	20.0
Mat. Spike										
Parameter	Sample	Spike	Unknown	Known	Units	Recovery %	Limits %	File		
Cyanide, total	2322828	0.332	0.0102	0.400	mg/L	80.4	90.0 - 110	126640926	*	
Cyanide, total	2322952	0.401	0.0074	0.400	mg/L	98.4	90.0 - 110	126640923		

Analytical Set **1132612**

SM 4500-CN⁻ G-2016

Blank										
Parameter	PrepSet	Reading	MDL	MQL	Units	File				
Cyanide After Chlorination	1132245	ND	0.00119	0.0025	mg/L	126641008				
CCV										
Parameter		Reading	Known	Units	Recover%	Limits%	File			
Cyanide After Chlorination		0.494	0.500	mg/L	98.8	90.0 - 110	126641005			
Cyanide After Chlorination		0.494	0.500	mg/L	98.8	90.0 - 110	126641006			
Cyanide After Chlorination		0.495	0.500	mg/L	99.0	90.0 - 110	126641007			
Cyanide After Chlorination		0.496	0.500	mg/L	99.2	90.0 - 110	126641015			
Cyanide After Chlorination		0.497	0.500	mg/L	99.4	90.0 - 110	126641016			
Cyanide After Chlorination		0.498	0.500	mg/L	99.6	90.0 - 110	126641017			
Duplicate										
Parameter	Sample	Result	Unknown	Unit	RPD	Limit%				
Cyanide After Chlorination	2323305	0.0036	0.005	mg/L	32.6	*	20.0			

Email: Kilgore.ProjectManagement@spllabs.com



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ICV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Cyanide After Chlorination	0.205	0.200	mg/L	102	90.0 - 110	126641004

LCS Dup

<u>Parameter</u>	<u>PrepSet</u>	<u>LCS</u>	<u>LCSD</u>	<u>Known</u>	<u>Limits%</u>	<u>LCS%</u>	<u>LCSD%</u>	<u>Units</u>	<u>RPD</u>	<u>Limit%</u>
Cyanide After Chlorination	1132245	0.184	0.186	0.200	90.0 - 110	92.0	93.0	mg/L	1.08	20.0

Mat. Spike

<u>Parameter</u>	<u>Sample</u>	<u>Spike</u>	<u>Unknown</u>	<u>Known</u>	<u>Units</u>	<u>Recovery %</u>	<u>Limits %</u>	<u>File</u>
Cyanide After Chlorination	2323305	0.370	0.005	0.400	mg/L	91.2	90.0 - 110	126641013

Analytical Set **1133100**

EPA 420.4 1

Blank

<u>Parameter</u>	<u>PrepSet</u>	<u>Reading</u>	<u>MDL</u>	<u>MQL</u>	<u>Units</u>	<u>File</u>
Phenolics, Total Recoverable	1132965	ND	0.003	0.005	mg/L	126650607

CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Phenolics, Total Recoverable	0.209	0.200	mg/L	104	90.0 - 110	126650606
Phenolics, Total Recoverable	0.191	0.200	mg/L	95.5	90.0 - 110	126650614
Phenolics, Total Recoverable	0.190	0.200	mg/L	95.0	90.0 - 110	126650617

Duplicate

<u>Parameter</u>	<u>Sample</u>	<u>Result</u>	<u>Unknown</u>	<u>Unit</u>	<u>RPD</u>	<u>Limit%</u>
Phenolics, Total Recoverable	2323305	0.008	0.014	mg/L	54.5	* 20.0

ICV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Phenolics, Total Recoverable	0.208	0.200	mg/L	104	90.0 - 110	126650605

LCS Dup

<u>Parameter</u>	<u>PrepSet</u>	<u>LCS</u>	<u>LCSD</u>	<u>Known</u>	<u>Limits%</u>	<u>LCS%</u>	<u>LCSD%</u>	<u>Units</u>	<u>RPD</u>	<u>Limit%</u>
Phenolics, Total Recoverable	1132965	0.181	0.184	0.200	90.0 - 110	90.5	92.0	mg/L	1.64	20.0

Mat. Spike

<u>Parameter</u>	<u>Sample</u>	<u>Spike</u>	<u>Unknown</u>	<u>Known</u>	<u>Units</u>	<u>Recovery %</u>	<u>Limits %</u>	<u>File</u>
Phenolics, Total Recoverable	2323305	0.092	0.014	0.200	mg/L	39.0	90.0 - 110	126650612

Analytical Set **1132790**

EPA 300.0 2.1

AWRL/LOQ C

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Fluoride	0.079	0.100	mg/L	79.0	70.0 - 130	126645233
Nitrate-Nitrogen Total	0.0214	0.0226	mg/L	94.7	70.0 - 130	126645233

Blank

<u>Parameter</u>	<u>PrepSet</u>	<u>Reading</u>	<u>MDL</u>	<u>MQL</u>	<u>Units</u>	<u>File</u>
Fluoride	1132790	ND	0.0112	0.100	mg/L	126645234
Nitrate-Nitrogen Total	1132790	ND	0.00331	0.0226	mg/L	126645234

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CCB

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Fluoride	1132790	0	0.0112	0.100	mg/L	126645230
Fluoride	1132790	0	0.0112	0.100	mg/L	126645250
Fluoride	1132790	0	0.0112	0.100	mg/L	126645262
Nitrate-Nitrogen Total	1132790	0.00316	0.00331	0.0226	mg/L	126645230
Nitrate-Nitrogen Total	1132790	-0.00181	0.00331	0.0226	mg/L	126645250
Nitrate-Nitrogen Total	1132790	-0.00113	0.00331	0.0226	mg/L	126645262

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Fluoride	9.83	10.0	mg/L	98.3	90.0 - 110	126645229
Fluoride	9.87	10.0	mg/L	98.7	90.0 - 110	126645249
Fluoride	9.99	10.0	mg/L	99.9	90.0 - 110	126645261
Nitrate-Nitrogen Total	2.34	2.26	mg/L	104	90.0 - 110	126645229
Nitrate-Nitrogen Total	2.32	2.26	mg/L	103	90.0 - 110	126645249
Nitrate-Nitrogen Total	2.32	2.26	mg/L	103	90.0 - 110	126645261

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Fluoride	1132790	4.98	4.94	5.00	88.0 - 120	99.6	98.8	mg/L	0.806	20.0
Nitrate-Nitrogen Total	1132790	1.13	1.13	1.13	88.0 - 116	100	100	mg/L	0	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Fluoride	2322437	178	175	ND	200	80.0 - 120	89.0	87.5	mg/L	1.70	20.0
Nitrate-Nitrogen Total	2322437	45.1	45.0	1.04	45.2	80.0 - 120	97.5	97.3	mg/L	0.227	20.0
Fluoride	2322674	91.8	91.3	ND	100	80.0 - 120	91.8	91.3	mg/L	0.546	20.0
Nitrate-Nitrogen Total	2322674	73.2	72.8	53.5	22.6	80.0 - 120	87.2	85.4	mg/L	2.05	20.0

Analytical Set 1132302

SM 3500-Cr B-2011

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Hexavalent Chromium	1132302	ND	0.550	3.00	ug/L	126634767
Hexavalent Chromium	1132302	ND	0.550	3.00	ug/L	126634778
Hexavalent Chromium	1132302	ND	0.550	3.00	ug/L	126634781
Hexavalent Chromium	1132302	ND	0.550	3.00	ug/L	126634787

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Hexavalent Chromium	85.7	80.0	ug/L	107	90.0 - 110	126634768
Hexavalent Chromium	86.2	80.0	ug/L	108	90.0 - 110	126634779
Hexavalent Chromium	86.2	80.0	ug/L	108	90.0 - 110	126634782
Hexavalent Chromium	87.9	80.0	ug/L	110	90.0 - 110	126634788

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Hexavalent Chromium	1132302	87.9	87.9	80.0	85.0 - 115	110	110	ug/L	0	15.0

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MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Hexavalent Chromium	2322816	60.8	64.8	ND	80.0	70.0 - 130	76.0	81.0	ug/L	6.37	20.0

Analytical Set

1132548

EPA 200.8 5.4

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Aluminum, Total	1132414	ND	0.0039	0.005	mg/L	126639511
Antimony, Total	1132414	ND	0.000847	0.003	mg/L	126639511
Arsenic, Total	1132414	ND	0.000902	0.001	mg/L	126639511
Barium, Total	1132414	ND	0.00207	0.005	mg/L	126639511
Beryllium, Total	1132414	ND	0.000162	0.001	mg/L	126639511
Cadmium, Total	1132414	ND	0.00012	0.001	mg/L	126639511
Chromium, Total	1132414	0.000449	0.000392	0.001	mg/L	126639511
Copper, Total	1132414	ND	0.000325	0.001	mg/L	126639511
Lead, Total	1132414	ND	0.000549	0.001	mg/L	126639511
Molybdenum, Total	1132414	ND	0.000155	0.001	mg/L	126639511
Nickel, Total	1132414	ND	0.000154	0.001	mg/L	126639511
Silver, Total	1132414	ND	0.000276	0.001	mg/L	126639511
Thallium, Total	1132414	ND	0.000966	0.001	mg/L	126639511
Zinc, Total	1132414	ND	0.000844	0.001	mg/L	126639511

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Aluminum, Total	0.0475	0.05	mg/L	95.0	90.0 - 110	126639455
Aluminum, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639466
Aluminum, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639477
Aluminum, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639487
Aluminum, Total	0.0478	0.05	mg/L	95.6	90.0 - 110	126639496
Aluminum, Total	0.047	0.05	mg/L	94.0	90.0 - 110	126639501
Aluminum, Total	0.0475	0.05	mg/L	95.0	90.0 - 110	126639507
Aluminum, Total	0.0497	0.05	mg/L	99.4	90.0 - 110	126639516
Aluminum, Total	0.0491	0.05	mg/L	98.2	90.0 - 110	126639527
Aluminum, Total	0.049	0.05	mg/L	98.0	90.0 - 110	126639538
Aluminum, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639545
Antimony, Total	0.0456	0.05	mg/L	91.2	90.0 - 110	126639477
Antimony, Total	0.0464	0.05	mg/L	92.8	90.0 - 110	126639487
Antimony, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639527
Antimony, Total	0.048	0.05	mg/L	96.0	90.0 - 110	126639538
Antimony, Total	0.0485	0.05	mg/L	97.0	90.0 - 110	126639545
Antimony, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639552
Arsenic, Total	0.0475	0.05	mg/L	95.0	90.0 - 110	126639455
Arsenic, Total	0.0468	0.05	mg/L	93.6	90.0 - 110	126639466
Arsenic, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639477
Arsenic, Total	0.047	0.05	mg/L	94.0	90.0 - 110	126639487
Arsenic, Total	0.0481	0.05	mg/L	96.2	90.0 - 110	126639496
Arsenic, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639501

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<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Arsenic, Total	0.0473	0.05	mg/L	94.6	90.0 - 110	126639516
Arsenic, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639527
Arsenic, Total	0.0467	0.05	mg/L	93.4	90.0 - 110	126639538
Arsenic, Total	0.0473	0.05	mg/L	94.6	90.0 - 110	126639545
Arsenic, Total	0.0498	0.05	mg/L	99.6	90.0 - 110	126639552
Barium, Total	0.0486	0.05	mg/L	97.2	90.0 - 110	126639455
Barium, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639466
Barium, Total	0.0475	0.05	mg/L	95.0	90.0 - 110	126639477
Barium, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639487
Barium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639501
Barium, Total	0.0488	0.05	mg/L	97.6	90.0 - 110	126639507
Barium, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639516
Barium, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639527
Barium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639538
Barium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639545
Barium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639562
Barium, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639573
Beryllium, Total	0.048	0.05	mg/L	96.0	90.0 - 110	126639477
Beryllium, Total	0.0479	0.05	mg/L	95.8	90.0 - 110	126639487
Beryllium, Total	0.0486	0.05	mg/L	97.2	90.0 - 110	126639538
Beryllium, Total	0.0486	0.05	mg/L	97.2	90.0 - 110	126639545
Beryllium, Total	0.0541	0.05	mg/L	108	90.0 - 110	126639578
Cadmium, Total	0.0471	0.05	mg/L	94.2	90.0 - 110	126639455
Cadmium, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639466
Cadmium, Total	0.0471	0.05	mg/L	94.2	90.0 - 110	126639477
Cadmium, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639487
Cadmium, Total	0.0476	0.05	mg/L	95.2	90.0 - 110	126639516
Cadmium, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639527
Cadmium, Total	0.0475	0.05	mg/L	95.0	90.0 - 110	126639538
Cadmium, Total	0.0476	0.05	mg/L	95.2	90.0 - 110	126639545
Cadmium, Total	0.0471	0.05	mg/L	94.2	90.0 - 110	126639552
Cadmium, Total	0.047	0.05	mg/L	94.0	90.0 - 110	126639562
Cadmium, Total	0.0467	0.05	mg/L	93.4	90.0 - 110	126639573
Chromium, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639455
Chromium, Total	0.0482	0.05	mg/L	96.4	90.0 - 110	126639466
Chromium, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639477
Chromium, Total	0.0481	0.05	mg/L	96.2	90.0 - 110	126639487
Chromium, Total	0.0482	0.05	mg/L	96.4	90.0 - 110	126639496
Chromium, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639501
Chromium, Total	0.0483	0.05	mg/L	96.6	90.0 - 110	126639507
Chromium, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639516
Chromium, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639527
Chromium, Total	0.0485	0.05	mg/L	97.0	90.0 - 110	126639538
Chromium, Total	0.049	0.05	mg/L	98.0	90.0 - 110	126639545
Chromium, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639552

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<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Chromium, Total	0.0482	0.05	mg/L	96.4	90.0 - 110	126639562
Chromium, Total	0.0488	0.05	mg/L	97.6	90.0 - 110	126639573
Copper, Total	0.0497	0.05	mg/L	99.4	90.0 - 110	126639455
Copper, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639466
Copper, Total	0.0488	0.05	mg/L	97.6	90.0 - 110	126639477
Copper, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639487
Copper, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639496
Copper, Total	0.0495	0.05	mg/L	99.0	90.0 - 110	126639507
Copper, Total	0.0503	0.05	mg/L	101	90.0 - 110	126639516
Copper, Total	0.0495	0.05	mg/L	99.0	90.0 - 110	126639527
Copper, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639538
Copper, Total	0.0495	0.05	mg/L	99.0	90.0 - 110	126639545
Copper, Total	0.0509	0.05	mg/L	102	90.0 - 110	126639552
Copper, Total	0.0505	0.05	mg/L	101	90.0 - 110	126639562
Copper, Total	0.0506	0.05	mg/L	101	90.0 - 110	126639573
Copper, Total	0.0512	0.05	mg/L	102	90.0 - 110	126639578
Lead, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639455
Lead, Total	0.050	0.05	mg/L	100	90.0 - 110	126639466
Lead, Total	0.0494	0.05	mg/L	98.8	90.0 - 110	126639477
Lead, Total	0.0504	0.05	mg/L	101	90.0 - 110	126639487
Lead, Total	0.0498	0.05	mg/L	99.6	90.0 - 110	126639496
Lead, Total	0.0504	0.05	mg/L	101	90.0 - 110	126639507
Lead, Total	0.0503	0.05	mg/L	101	90.0 - 110	126639516
Lead, Total	0.0509	0.05	mg/L	102	90.0 - 110	126639527
Lead, Total	0.0505	0.05	mg/L	101	90.0 - 110	126639538
Lead, Total	0.0508	0.05	mg/L	102	90.0 - 110	126639545
Lead, Total	0.0506	0.05	mg/L	101	90.0 - 110	126639552
Lead, Total	0.0516	0.05	mg/L	103	90.0 - 110	126639562
Lead, Total	0.0514	0.05	mg/L	103	90.0 - 110	126639573
Lead, Total	0.051	0.05	mg/L	102	90.0 - 110	126639578
Molybdenum, Total	0.0481	0.05	mg/L	96.2	90.0 - 110	126639455
Molybdenum, Total	0.0476	0.05	mg/L	95.2	90.0 - 110	126639477
Molybdenum, Total	0.0504	0.05	mg/L	101	90.0 - 110	126639487
Molybdenum, Total	0.0505	0.05	mg/L	101	90.0 - 110	126639496
Molybdenum, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639507
Molybdenum, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639516
Molybdenum, Total	0.0468	0.05	mg/L	93.6	90.0 - 110	126639527
Molybdenum, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639538
Molybdenum, Total	0.0474	0.05	mg/L	94.8	90.0 - 110	126639545
Nickel, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639455
Nickel, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639466
Nickel, Total	0.0485	0.05	mg/L	97.0	90.0 - 110	126639477
Nickel, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639507
Nickel, Total	0.0501	0.05	mg/L	100	90.0 - 110	126639516
Nickel, Total	0.0497	0.05	mg/L	99.4	90.0 - 110	126639527

Email: Kilgore.ProjectManagement@spllabs.com



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<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Nickel, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639538
Nickel, Total	0.0497	0.05	mg/L	99.4	90.0 - 110	126639545
Nickel, Total	0.0502	0.05	mg/L	100	90.0 - 110	126639552
Silver, Total	0.0478	0.05	mg/L	95.6	90.0 - 110	126639455
Silver, Total	0.0479	0.05	mg/L	95.8	90.0 - 110	126639466
Silver, Total	0.047	0.05	mg/L	94.0	90.0 - 110	126639477
Silver, Total	0.0473	0.05	mg/L	94.6	90.0 - 110	126639487
Silver, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639516
Silver, Total	0.0479	0.05	mg/L	95.8	90.0 - 110	126639527
Silver, Total	0.0479	0.05	mg/L	95.8	90.0 - 110	126639538
Silver, Total	0.0482	0.05	mg/L	96.4	90.0 - 110	126639545
Silver, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639552
Silver, Total	0.0473	0.05	mg/L	94.6	90.0 - 110	126639562
Silver, Total	0.0472	0.05	mg/L	94.4	90.0 - 110	126639573
Zinc, Total	0.049	0.05	mg/L	98.0	90.0 - 110	126639455
Zinc, Total	0.0487	0.05	mg/L	97.4	90.0 - 110	126639466
Zinc, Total	0.0485	0.05	mg/L	97.0	90.0 - 110	126639477
Zinc, Total	0.0492	0.05	mg/L	98.4	90.0 - 110	126639487
Zinc, Total	0.049	0.05	mg/L	98.0	90.0 - 110	126639496
Zinc, Total	0.0482	0.05	mg/L	96.4	90.0 - 110	126639501
Zinc, Total	0.049	0.05	mg/L	98.0	90.0 - 110	126639507
Zinc, Total	0.0502	0.05	mg/L	100	90.0 - 110	126639516
Zinc, Total	0.0495	0.05	mg/L	99.0	90.0 - 110	126639527
Zinc, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639538
Zinc, Total	0.0493	0.05	mg/L	98.6	90.0 - 110	126639545
Zinc, Total	0.0501	0.05	mg/L	100	90.0 - 110	126639552
Zinc, Total	0.0495	0.05	mg/L	99.0	90.0 - 110	126639562

ICV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Aluminum, Total	0.047	0.05	mg/L	94.0	90.0 - 110	126639448
Antimony, Total	0.0478	0.05	mg/L	95.6	90.0 - 110	126639448
Arsenic, Total	0.0473	0.05	mg/L	94.6	90.0 - 110	126639448
Barium, Total	0.0489	0.05	mg/L	97.8	90.0 - 110	126639448
Beryllium, Total	0.0486	0.05	mg/L	97.2	90.0 - 110	126639448
Cadmium, Total	0.0477	0.05	mg/L	95.4	90.0 - 110	126639448
Chromium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639448
Copper, Total	0.0501	0.05	mg/L	100	90.0 - 110	126639448
Lead, Total	0.050	0.05	mg/L	100	90.0 - 110	126639448
Molybdenum, Total	0.0476	0.05	mg/L	95.2	90.0 - 110	126639448
Nickel, Total	0.0499	0.05	mg/L	99.8	90.0 - 110	126639448
Silver, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126639448
Zinc, Total	0.0496	0.05	mg/L	99.2	90.0 - 110	126639448



QUALITY CONTROL



TYL1-A

City of TylerWest Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

Project
1113566

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Aluminum, Total	1132414	0.495	0.496	0.500	85.0 - 115	99.0	99.2	mg/L	0.202	20.0
Antimony, Total	1132414	0.494	0.501	0.500	85.0 - 115	98.8	100	mg/L	1.41	20.0
Arsenic, Total	1132414	0.462	0.472	0.500	85.0 - 115	92.4	94.4	mg/L	2.14	20.0
Barium, Total	1132414	0.483	0.491	0.500	85.0 - 115	96.6	98.2	mg/L	1.64	20.0
Beryllium, Total	1132414	0.197	0.199	0.200	85.0 - 115	98.5	99.5	mg/L	1.01	20.0
Cadmium, Total	1132414	0.240	0.245	0.250	85.0 - 115	96.0	98.0	mg/L	2.06	20.0
Chromium, Total	1132414	0.491	0.495	0.500	85.0 - 115	98.2	99.0	mg/L	0.811	20.0
Copper, Total	1132414	0.492	0.500	0.500	85.0 - 115	98.4	100	mg/L	1.61	20.0
Lead, Total	1132414	0.485	0.491	0.500	85.0 - 115	97.0	98.2	mg/L	1.23	20.0
Molybdenum, Total	1132414	0.486	0.497	0.500	85.0 - 115	97.2	99.4	mg/L	2.24	20.0
Nickel, Total	1132414	0.499	0.504	0.500	85.0 - 115	99.8	101	mg/L	0.997	20.0
Silver, Total	1132414	0.0972	0.0979	0.100	85.0 - 115	97.2	97.9	mg/L	0.718	20.0
Thallium, Total	1132414	0.493	0.496	0.500	85.0 - 115	98.6	99.2	mg/L	0.607	20.0
Zinc, Total	1132414	0.488	0.498	0.500	85.0 - 115	97.6	99.6	mg/L	2.03	20.0

MRL Check

Parameter	Reading	Known	Units	Recover%	Limits%	File
Copper, Total	0.00132	0.001	mg/L	132	25.0 - 175	126639449
Lead, Total	0.000889	0.001	mg/L	88.9	25.0 - 175	126639449

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Aluminum, Total	2322765	0.589	0.584	0.0973	0.500	70.0 - 130	98.3	97.3	mg/L	1.02	20.0
Antimony, Total	2322765	0.518	0.510	ND	0.500	70.0 - 130	104	102	mg/L	1.56	20.0
Beryllium, Total	2322765	0.201	0.198	ND	0.200	70.0 - 130	100	99.0	mg/L	1.50	20.0
Copper, Total	2322765	0.477	0.471	0.000591	0.500	70.0 - 130	95.3	94.1	mg/L	1.27	20.0
Lead, Total	2322765	0.471	0.469	ND	0.500	70.0 - 130	94.2	93.8	mg/L	0.426	20.0
Silver, Total	2322765	0.0946	0.0931	ND	0.100	70.0 - 130	94.6	93.1	mg/L	1.60	20.0
Zinc, Total	2322765	0.474	0.466	0.00302	0.500	70.0 - 130	94.2	92.6	mg/L	1.71	20.0
Aluminum, Total	2323331	0.606	0.600	0.114	0.500	70.0 - 130	98.4	97.2	mg/L	1.23	20.0
Arsenic, Total	2323331	0.481	0.483	0.00292	0.500	70.0 - 130	95.6	96.0	mg/L	0.417	20.0
Barium, Total	2323331	0.499	0.496	0.0113	0.500	70.0 - 130	97.5	96.9	mg/L	0.617	20.0
Cadmium, Total	2323331	0.235	0.238	ND	0.250	70.0 - 130	94.0	95.2	mg/L	1.27	20.0
Chromium, Total	2323331	0.581	0.577	0.0972	0.500	70.0 - 130	96.8	96.0	mg/L	0.830	20.0
Copper, Total	2323331	0.483	0.478	0.0144	0.500	70.0 - 130	93.7	92.7	mg/L	1.07	20.0
Lead, Total	2323331	0.471	0.464	0.00412	0.500	70.0 - 130	93.4	92.0	mg/L	1.51	20.0
Molybdenum, Total	2323331	0.513	0.526	0.00752	0.500	70.0 - 130	101	104	mg/L	2.54	20.0
Nickel, Total	2323331	0.523	0.517	0.0538	0.500	70.0 - 130	93.8	92.6	mg/L	1.29	20.0
Silver, Total	2323331	0.0925	0.0929	ND	0.100	70.0 - 130	92.5	92.9	mg/L	0.431	20.0
Thallium, Total	2323331	0.441	0.447	ND	0.500	70.0 - 130	88.2	89.4	mg/L	1.35	20.0
Zinc, Total	2323331	0.618	0.608	0.151	0.500	70.0 - 130	93.4	91.4	mg/L	2.16	20.0

Analytical Set

1132746

EPA 200.8 5.4

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
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City of TylerWest Plant
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 511 W. Locust
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Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Arsenic, Total	1132414	ND	0.00025	0.0005	mg/L	126644203
Selenium, Total	1132414	ND	0.000728	0.002	mg/L	126644203

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Selenium, Total	0.0503	0.05	mg/L	101	90.0 - 110	126644185
Selenium, Total	0.0537	0.05	mg/L	107	90.0 - 110	126644195
Selenium, Total	0.0525	0.05	mg/L	105	90.0 - 110	126644205
Selenium, Total	0.0525	0.05	mg/L	105	90.0 - 110	126644216

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Selenium, Total	0.0501	0.05	mg/L	100	90.0 - 110	126644180

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Arsenic, Total	1132414	0.474	0.480	0.500	85.0 - 115	94.8	96.0	mg/L	1.26	20.0
Selenium, Total	1132414	0.497	0.503	0.500	85.0 - 115	99.4	101	mg/L	1.20	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Arsenic, Total	2323331	0.484	0.481	0.00189	0.500	70.0 - 130	96.4	95.8	mg/L	0.624	20.0
Selenium, Total	2323331	0.487	0.482	0.00137	0.500	70.0 - 130	97.1	96.1	mg/L	1.03	20.0

Analytical Set

1132905

EPA 200.8 5.4

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Aluminum, Total	1132414	ND	0.00171	0.00171	mg/L	126647376
Lead, Total	1132414	ND	0.000244	0.001	mg/L	126647376
Thallium, Total	1132414	ND	0.000106	0.001	mg/L	126647376

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Thallium, Total	0.048	0.05	mg/L	96.0	90.0 - 110	126647370
Thallium, Total	0.0484	0.05	mg/L	96.8	90.0 - 110	126647378
Thallium, Total	0.0478	0.05	mg/L	95.6	90.0 - 110	126647385

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Thallium, Total	0.0501	0.05	mg/L	100	90.0 - 110	126647323

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Aluminum, Total	1132414	0.507	0.511	0.500	85.0 - 115	101	102	mg/L	0.786	20.0
Lead, Total	1132414	0.502	0.504	0.500	85.0 - 115	100	101	mg/L	0.398	20.0
Thallium, Total	1132414	0.500	0.507	0.500	85.0 - 115	100	101	mg/L	1.39	20.0

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MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Aluminum, Total	2322765	0.640	0.646	0.0978	0.500	70.0 - 130	108	110	mg/L	1.10	20.0
Lead, Total	2322765	0.498	0.487	ND	0.500	70.0 - 130	99.6	97.4	mg/L	2.23	20.0
Thallium, Total	2322765	0.494	0.508	ND	0.500	70.0 - 130	98.8	102	mg/L	2.79	20.0

Analytical Set

1133870

EPA 245.7 2

AWRL/LOQ C

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury, Total (low level)	6.46	5.00	ng/L	129	70.0 - 130	126668565

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Mercury, Total (low level)	1133729	ND	1.20	5.00	ng/L	126668568

CCB

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Mercury, Total (low level)	1133729	ND	1.20	5.00	ng/L	126668567
Mercury, Total (low level)	1133729	ND	1.20	5.00	ng/L	126668582
Mercury, Total (low level)	1133729	1.28	1.20	5.00	ng/L	126668592
Mercury, Total (low level)	1133729	ND	1.20	5.00	ng/L	126668598
Mercury, Total (low level)	1133870	ND	1.20	5.00	ng/L	126668604

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury, Total (low level)	25.6	25.0	ng/L	102	87.0 - 113	126668566
Mercury, Total (low level)	26.6	25.0	ng/L	106	87.0 - 113	126668581
Mercury, Total (low level)	26.4	25.0	ng/L	106	87.0 - 113	126668591
Mercury, Total (low level)	23.0	25.0	ng/L	92.0	87.0 - 113	126668597
Mercury, Total (low level)	21.1	25.0	ng/L	84.4	87.0 - 113 *	126668603

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury, Total (low level)	47.8	50.0	ng/L	95.6	90.0 - 110	126668563

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury, Total (low level)	24.2	25.0	ng/L	96.8	90.0 - 110	126668564

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Mercury, Total (low level)	1133729	21.3	21.3	25.0	76.0 - 115	85.2	85.2	ng/L	0	50.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Mercury, Total (low level)	2323311	20.4	23.6	ND	26.6	63.0 - 111	76.7	88.7	ng/L	14.5	18.0
Mercury, Total (low level)	2323816	13.9	13.6	1.78	26.6	63.0 - 111	45.6 *	44.4 *	ng/L	2.51	18.0

Analytical Set

1132589

EPA 624.1

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 511 W. Locust
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BFB

Parameter	Sample	RefMass	Reading	%	Limits%	File
BFB Mass 173	1132589	174	174	1.2	0 - 2.00	126640656
BFB Mass 174	1132589	95.0	14416	66.8	50.0 - 100	126640656
BFB Mass 175	1132589	174	1220	8.5	5.00 - 9.00	126640656
BFB Mass 176	1132589	174	14075	97.6	95.0 - 101	126640656
BFB Mass 177	1132589	176	952	6.8	5.00 - 9.00	126640656
BFB Mass 50	1132589	95.0	5183	24.0	15.0 - 40.0	126640656
BFB Mass 75	1132589	95.0	11553	53.5	30.0 - 60.0	126640656
BFB Mass 95	1132589	95.0	21592	100.0	100 - 100	126640656
BFB Mass 96	1132589	95.0	1427	6.6	5.00 - 9.00	126640656

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Acrolein	1132589	ND	2.33	4.00	ug/L	126640660
Acrylonitrile	1132589	ND	0.998	1.00	ug/L	126640660

IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132589	LCS	129800	133400	66710	200100	126640658	1132589
1,4-DichlorobenzeneD4 (ISTD)	1132589	LCS Dup	131500	133400	66710	200100	126640659	1132589
1,4-DichlorobenzeneD4 (ISTD)	1132589	Blank	115200	133400	66710	200100	126640660	1132589
ChlorobenzeneD5 (ISTD)	1132589	LCS	240700	232100	116100	348200	126640658	1132589
ChlorobenzeneD5 (ISTD)	1132589	LCS Dup	243600	232100	116100	348200	126640659	1132589
ChlorobenzeneD5 (ISTD)	1132589	Blank	235400	232100	116100	348200	126640660	1132589
1,4-DichlorobenzeneD4 (ISTD)	2323484	Unknown	118300	133400	66710	200100	126640662	1132406
ChlorobenzeneD5 (ISTD)	2323484	Unknown	227500	232100	116100	348200	126640662	1132406
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	121700	133400	66710	200100	126640664	1132589
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	123000	133400	66710	200100	126640665	1132589
ChlorobenzeneD5 (ISTD)	2323873	MS	215200	232100	116100	348200	126640664	1132589
ChlorobenzeneD5 (ISTD)	2323873	MSD	221400	232100	116100	348200	126640665	1132589

IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132589	LCS	11.97	11.97	11.91	12.03	126640658	1132589
1,4-DichlorobenzeneD4 (ISTD)	1132589	LCS Dup	11.96	11.97	11.91	12.03	126640659	1132589
1,4-DichlorobenzeneD4 (ISTD)	1132589	Blank	11.97	11.97	11.91	12.03	126640660	1132589
ChlorobenzeneD5 (ISTD)	1132589	LCS	9.597	9.597	9.537	9.657	126640658	1132589
ChlorobenzeneD5 (ISTD)	1132589	LCS Dup	9.597	9.597	9.537	9.657	126640659	1132589
ChlorobenzeneD5 (ISTD)	1132589	Blank	9.597	9.597	9.537	9.657	126640660	1132589
1,4-DichlorobenzeneD4 (ISTD)	2323484	Unknown	11.97	11.97	11.91	12.03	126640662	1132406
ChlorobenzeneD5 (ISTD)	2323484	Unknown	9.597	9.597	9.537	9.657	126640662	1132406
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	11.97	11.97	11.91	12.03	126640664	1132589
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	11.97	11.97	11.91	12.03	126640665	1132589
ChlorobenzeneD5 (ISTD)	2323873	MS	9.597	9.597	9.537	9.657	126640664	1132589
ChlorobenzeneD5 (ISTD)	2323873	MSD	9.591	9.597	9.537	9.657	126640665	1132589



QUALITY CONTROL



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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Acrolein	1132589	41.7	33.3	40.0	60.0 - 140	104	83.2	ug/L	22.2	30.0
Acrylonitrile	1132589	44.9	45.8	40.0	60.0 - 140	112	114	ug/L	1.77	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Acrolein	2323873	128	126	ND	200	40.0 - 160	64.0	63.0	ug/L	1.57	60.0
Acrylonitrile	2323873	216	220	ND	200	40.0 - 160	108	110	ug/L	1.83	60.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
1,2-DCA-d4 (SURR)	1132589	LCS	18.8	20.0	ug/L	94.0	70.0 - 130	126640658
1,2-DCA-d4 (SURR)	1132589	LCS Dup	18.8	20.0	ug/L	94.0	70.0 - 130	126640659
1,2-DCA-d4 (SURR)	1132589	Blank	18.6	20.0	ug/L	93.0	70.0 - 130	126640660
Bromofluorobenzene (SURR)	1132589	LCS	19.8	20.0	ug/L	99.0	70.0 - 130	126640658
Bromofluorobenzene (SURR)	1132589	LCS Dup	19.5	20.0	ug/L	97.5	70.0 - 130	126640659
Bromofluorobenzene (SURR)	1132589	Blank	20.4	20.0	ug/L	102	70.0 - 130	126640660
Dibromofluoromethane (SURR)	1132589	LCS	18.7	20.0	ug/L	93.5	70.0 - 130	126640658
Dibromofluoromethane (SURR)	1132589	LCS Dup	18.5	20.0	ug/L	92.5	70.0 - 130	126640659
Dibromofluoromethane (SURR)	1132589	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640660
TolueneD8 (SURR)	1132589	LCS	18.3	20.0	ug/L	91.5	70.0 - 130	126640658
TolueneD8 (SURR)	1132589	LCS Dup	18.2	20.0	ug/L	91.0	70.0 - 130	126640659
TolueneD8 (SURR)	1132589	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640660
1,2-DCA-d4 (SURR)	2323484	Unknown	19.0	20.0	ug/L	95.0	70.0 - 130	126640662
Bromofluorobenzene (SURR)	2323484	Unknown	19.4	20.0	ug/L	97.0	70.0 - 130	126640662
Dibromofluoromethane (SURR)	2323484	Unknown	18.6	20.0	ug/L	93.0	70.0 - 130	126640662
TolueneD8 (SURR)	2323484	Unknown	18.6	20.0	ug/L	93.0	70.0 - 130	126640662
1,2-DCA-d4 (SURR)	2323873	MS	19.0	20.0	ug/L	95.0	70.0 - 130	126640664
1,2-DCA-d4 (SURR)	2323873	MSD	19.4	20.0	ug/L	97.0	70.0 - 130	126640665
Bromofluorobenzene (SURR)	2323873	MS	18.8	20.0	ug/L	94.0	70.0 - 130	126640664
Bromofluorobenzene (SURR)	2323873	MSD	19.1	20.0	ug/L	95.5	70.0 - 130	126640665
Dibromofluoromethane (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640664
Dibromofluoromethane (SURR)	2323873	MSD	19.0	20.0	ug/L	95.0	70.0 - 130	126640665
TolueneD8 (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640664
TolueneD8 (SURR)	2323873	MSD	18.6	20.0	ug/L	93.0	70.0 - 130	126640665

Analytical Set

1132590

EPA 624.1

BFB

Parameter	Sample	RefMass	Reading	%	Limits%	File
BFB Mass 173	1132590	174	174	1.2	0 - 2.00	126640666
BFB Mass 174	1132590	95.0	14416	66.8	50.0 - 100	126640666
BFB Mass 175	1132590	174	1220	8.5	5.00 - 9.00	126640666
BFB Mass 176	1132590	174	14075	97.6	95.0 - 101	126640666
BFB Mass 177	1132590	176	952	6.8	5.00 - 9.00	126640666
BFB Mass 50	1132590	95.0	5183	24.0	15.0 - 40.0	126640666
BFB Mass 75	1132590	95.0	11553	53.5	30.0 - 60.0	126640666

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BFB

Parameter	Sample	RefMass	Reading	%	Limits%	File
BFB Mass 95	1132590	95.0	21592	100.0	100 - 100	126640666
BFB Mass 96	1132590	95.0	1427	6.6	5.00 - 9.00	126640666

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
1,1,1-Trichloroethane	1132590	ND	0.531	1.00	ug/L	126640670
1,1,2-Trichloroethane	1132590	ND	0.563	1.00	ug/L	126640670
1,1-Dichloroethane	1132590	ND	0.593	1.00	ug/L	126640670
1,1-Dichloroethylene	1132590	ND	0.574	1.00	ug/L	126640670
1,2-Dibromoethane (EDB)	1132590	ND	0.562	1.00	ug/L	126640670
1,2-Dichloroethane	1132590	ND	0.590	1.00	ug/L	126640670
1,2-Dichloropropane	1132590	ND	0.615	1.00	ug/L	126640670
Benzene	1132590	ND	0.453	1.00	ug/L	126640670
Bromodichloromethane	1132590	ND	0.409	1.00	ug/L	126640670
Bromoform	1132590	ND	0.500	1.00	ug/L	126640670
Carbon Tetrachloride	1132590	ND	0.299	1.00	ug/L	126640670
Chlorobenzene	1132590	ND	0.558	1.00	ug/L	126640670
Chloroethane	1132590	ND	1.12	1.12	ug/L	126640670
Chloroform	1132590	ND	0.463	1.00	ug/L	126640670
Chloromethane (Methyl Chloride)	1132590	ND	0.811	1.00	ug/L	126640670
cis-1,3-Dichloropropene	1132590	ND	0.660	1.00	ug/L	126640670
Dibromochloromethane	1132590	ND	0.311	1.00	ug/L	126640670
Dichloromethane	1132590	ND	1.02	1.02	ug/L	126640670
Ethylbenzene	1132590	ND	0.498	1.00	ug/L	126640670
m-Dichlorobenzene (1,3-DCB)	1132590	ND	0.619	1.00	ug/L	126640670
Methyl ethyl ketone (Butanone)	1132590	ND	0.742	1.00	ug/L	126640670
o-Dichlorobenzene (1,2-DCB)	1132590	ND	0.532	1.00	ug/L	126640670
p-Dichlorobenzene (1,4-DCB)	1132590	ND	0.837	1.00	ug/L	126640670
Tetrachloroethylene	1132590	ND	0.607	1.00	ug/L	126640670
Toluene	1132590	ND	0.655	1.00	ug/L	126640670
trans-1,2-Dichloroethylene	1132590	ND	0.701	1.00	ug/L	126640670
trans-1,3-Dichloropropene	1132590	ND	0.627	1.00	ug/L	126640670
Trichloroethylene	1132590	ND	0.521	1.00	ug/L	126640670
Vinyl chloride	1132590	ND	0.702	1.00	ug/L	126640670

IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132590	LCS	129800	133400	66710	200100	126640668	1132590
1,4-DichlorobenzeneD4 (ISTD)	1132590	LCS Dup	131500	133400	66710	200100	126640669	1132590
1,4-DichlorobenzeneD4 (ISTD)	1132590	Blank	115200	133400	66710	200100	126640670	1132590
ChlorobenzeneD5 (ISTD)	1132590	LCS	240700	232100	116100	348200	126640668	1132590
ChlorobenzeneD5 (ISTD)	1132590	LCS Dup	243600	232100	116100	348200	126640669	1132590
ChlorobenzeneD5 (ISTD)	1132590	Blank	235400	232100	116100	348200	126640670	1132590
1,4-DichlorobenzeneD4 (ISTD)	2323484	Unknown	122400	133400	66710	200100	126640674	1132408
ChlorobenzeneD5 (ISTD)	2323484	Unknown	232300	232100	116100	348200	126640674	1132408

Email: Kilgore.ProjectManagement@spllabs.com



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TYL1-A

City of TylerWest Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

Project
1113566

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IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	121700	133400	66710	200100	126640676	1132590
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	123000	133400	66710	200100	126640677	1132590
ChlorobenzeneD5 (ISTD)	2323873	MS	215200	232100	116100	348200	126640676	1132590
ChlorobenzeneD5 (ISTD)	2323873	MSD	221400	232100	116100	348200	126640677	1132590

IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132590	LCS	11.97	11.97	11.91	12.03	126640668	1132590
1,4-DichlorobenzeneD4 (ISTD)	1132590	LCS Dup	11.96	11.97	11.91	12.03	126640669	1132590
1,4-DichlorobenzeneD4 (ISTD)	1132590	Blank	11.97	11.97	11.91	12.03	126640670	1132590
ChlorobenzeneD5 (ISTD)	1132590	LCS	9.597	9.597	9.537	9.657	126640668	1132590
ChlorobenzeneD5 (ISTD)	1132590	LCS Dup	9.597	9.597	9.537	9.657	126640669	1132590
ChlorobenzeneD5 (ISTD)	1132590	Blank	9.597	9.597	9.537	9.657	126640670	1132590
1,4-DichlorobenzeneD4 (ISTD)	2323484	Unknown	11.97	11.97	11.91	12.03	126640674	1132408
ChlorobenzeneD5 (ISTD)	2323484	Unknown	9.597	9.597	9.537	9.657	126640674	1132408
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	11.97	11.97	11.91	12.03	126640676	1132590
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	11.97	11.97	11.91	12.03	126640677	1132590
ChlorobenzeneD5 (ISTD)	2323873	MS	9.597	9.597	9.537	9.657	126640676	1132590
ChlorobenzeneD5 (ISTD)	2323873	MSD	9.591	9.597	9.537	9.657	126640677	1132590

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
1,1,1-Trichloroethane	1132590	17.8	16.6	20.0	70.0 - 130	89.0	83.0	ug/L	6.98	21.0
1,1,2,2-Tetrachloroethane	1132590	19.3	19.5	20.0	60.0 - 140	96.5	97.5	ug/L	1.03	36.0
1,1,2-Trichloroethane	1132590	19.0	19.2	20.0	70.0 - 130	95.0	96.0	ug/L	1.05	27.0
1,1-Dichloroethane	1132590	18.7	17.7	20.0	70.0 - 130	93.5	88.5	ug/L	5.49	24.0
1,1-Dichloroethylene	1132590	18.7	18.2	20.0	50.0 - 150	93.5	91.0	ug/L	2.71	40.0
1,2-Dibromoethane (EDB)	1132590	19.1	18.7	20.0	78.4 - 122	95.5	93.5	ug/L	2.12	30.0
1,2-Dichloroethane	1132590	20.8	20.6	20.0	70.0 - 130	104	103	ug/L	0.966	29.0
1,2-Dichloropropane	1132590	18.1	17.2	20.0	35.0 - 165	90.5	86.0	ug/L	5.10	69.0
2-Chloroethylvinyl ether	1132590	0.510	0.530	20.0	0.100 - 225	2.55	2.65	ug/L	3.85	130
Benzene	1132590	18.0	17.4	20.0	65.0 - 135	90.0	87.0	ug/L	3.39	33.0
Bromodichloromethane	1132590	18.0	17.3	20.0	65.0 - 135	90.0	86.5	ug/L	3.97	34.0
Bromoform	1132590	17.8	16.9	20.0	70.0 - 130	89.0	84.5	ug/L	5.19	25.0
Bromomethane (Methyl Bromi	1132590	21.0	21.0	20.0	15.0 - 185	105	105	ug/L	0	90.0
Carbon Tetrachloride	1132590	15.5	14.8	20.0	70.0 - 130	77.5	74.0	ug/L	4.62	26.0
Chlorobenzene	1132590	19.9	19.3	20.0	65.0 - 135	99.5	96.5	ug/L	3.06	29.0
Chloroethane	1132590	17.8	14.7	20.0	40.0 - 160	89.0	73.5	ug/L	19.1	47.0
Chloroform	1132590	18.5	17.7	20.0	70.0 - 135	92.5	88.5	ug/L	4.42	32.0
Chloromethane (Methyl Chloride)	1132590	20.5	19.2	20.0	0.100 - 205	102	96.0	ug/L	6.06	472
cis-1,2-Dichloroethylene	1132590	17.3	17.0	20.0	78.3 - 119	86.5	85.0	ug/L	1.75	30.0
cis-1,3-Dichloropropene	1132590	16.8	16.2	20.0	25.0 - 175	84.0	81.0	ug/L	3.64	79.0
Dibromochloromethane	1132590	17.1	16.8	20.0	70.0 - 135	85.5	84.0	ug/L	1.77	30.0
Dichloromethane	1132590	18.1	17.0	20.0	60.0 - 140	90.5	85.0	ug/L	6.27	192
Ethylbenzene	1132590	19.7	18.7	20.0	60.0 - 140	98.5	93.5	ug/L	5.21	34.0



TYL1-A

City of TylerWest Plant
Ryan Peden
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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
m-Dichlorobenzene (1,3-DCB)	1132590	19.5	18.8	20.0	70.0 - 130	97.5	94.0	ug/L	3.66	24.0
Methyl ethyl ketone (Butanone)	1132590	23.6	23.3	20.0	62.3 - 136	118	116	ug/L	1.71	30.0
o-Dichlorobenzene (1,2-DCB)	1132590	19.3	18.4	20.0	65.0 - 135	96.5	92.0	ug/L	4.77	31.0
p-Dichlorobenzene (1,4-DCB)	1132590	19.1	18.9	20.0	65.0 - 135	95.5	94.5	ug/L	1.05	31.0
Tetrachloroethylene	1132590	17.6	17.1	20.0	70.0 - 130	88.0	85.5	ug/L	2.88	23.0
Toluene	1132590	19.7	18.8	20.0	70.0 - 130	98.5	94.0	ug/L	4.68	22.0
trans-1,2-Dichloroethylene	1132590	18.1	17.0	20.0	70.0 - 130	90.5	85.0	ug/L	6.27	27.0
trans-1,3-Dichloropropene	1132590	18.1	17.6	20.0	50.0 - 150	90.5	88.0	ug/L	2.80	52.0
Trichloroethylene	1132590	17.6	16.6	20.0	65.0 - 135	88.0	83.0	ug/L	5.85	29.0
Vinyl chloride	1132590	22.9	21.5	20.0	5.00 - 195	114	108	ug/L	5.41	100

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
1,1,1-Trichloroethane	2323873	85.4	81.3	ND	100	52.0 - 162	85.4	81.3	ug/L	4.92	36.0
1,1,2,2-Tetrachloroethane	2323873	91.4	89.2	ND	100	46.0 - 157	91.4	89.2	ug/L	2.44	61.0
1,1,2-Trichloroethane	2323873	93.2	91.0	ND	100	52.0 - 150	93.2	91.0	ug/L	2.39	45.0
1,1-Dichloroethane	2323873	88.8	84.6	ND	100	59.0 - 155	88.8	84.6	ug/L	4.84	40.0
1,1-Dichloroethylene	2323873	93.8	89.5	ND	100	0.100 - 234	93.8	89.5	ug/L	4.69	32.0
1,2-Dibromoethane (EDB)	2323873	87.6	90.7	ND	100	49.3 - 120	87.6	90.7	ug/L	3.48	30.0
1,2-Dichloroethane	2323873	100	93.4	ND	100	49.0 - 155	100	93.4	ug/L	6.83	49.0
1,2-Dichloropropane	2323873	85.4	82.3	ND	100	0.100 - 210	85.4	82.3	ug/L	3.70	55.0
2-Chloroethylvinyl ether	2323873	2.00	1.90	ND	100	0.100 - 305	2.00	1.90	ug/L	5.13	71.0
Benzene	2323873	87.7	84.0	ND	100	37.0 - 151	87.7	84.0	ug/L	4.31	61.0
Bromodichloromethane	2323873	87.2	84.6	ND	100	35.0 - 155	87.2	84.6	ug/L	3.03	56.0
Bromoform	2323873	82.0	82.2	ND	100	45.0 - 169	82.0	82.2	ug/L	0.244	42.0
Bromomethane (Methyl Bromi)	2323873	106	101	ND	100	0.100 - 242	106	101	ug/L	4.83	61.0
Carbon Tetrachloride	2323873	79.4	76.2	ND	100	70.0 - 140	79.4	76.2	ug/L	4.11	41.0
Chlorobenzene	2323873	92.8	92.2	ND	100	37.0 - 160	92.8	92.2	ug/L	0.649	53.0
Chloroethane	2323873	82.6	81.8	ND	100	14.0 - 230	82.6	81.8	ug/L	0.973	78.0
Chloroform	2323873	87.0	83.6	ND	100	51.0 - 138	87.0	83.6	ug/L	3.99	54.0
Chloromethane (Methyl Chloride)	2323873	96.2	95.9	ND	100	0.100 - 273	96.2	95.9	ug/L	0.312	60.0
cis-1,2-Dichloroethylene	2323873	81.8	81.7	ND	100	9.47 - 116	81.8	81.7	ug/L	0.122	30.0
cis-1,3-Dichloropropene	2323873	79.5	77.8	ND	100	0.100 - 227	79.5	77.8	ug/L	2.16	58.0
Dibromochloromethane	2323873	82.2	79.6	ND	100	53.0 - 149	82.2	79.6	ug/L	3.21	50.0
Dichloromethane	2323873	87.3	84.6	ND	100	0.100 - 221	87.3	84.6	ug/L	3.14	28.0
Ethylbenzene	2323873	90.0	89.6	ND	100	37.0 - 162	90.0	89.6	ug/L	0.445	63.0
m-Dichlorobenzene (1,3-DCB)	2323873	84.7	84.5	ND	100	59.0 - 156	84.7	84.5	ug/L	0.236	43.0
Methyl ethyl ketone (Butanone)	2323873	122	122	ND	100	0.100 - 211	122	122	ug/L	0	30.0
o-Dichlorobenzene (1,2-DCB)	2323873	81.4	84.3	ND	100	18.0 - 190	81.4	84.3	ug/L	3.50	57.0
p-Dichlorobenzene (1,4-DCB)	2323873	86.4	86.6	ND	100	18.0 - 190	86.4	86.6	ug/L	0.231	57.0
Tetrachloroethylene	2323873	80.8	79.3	ND	100	64.0 - 148	80.8	79.3	ug/L	1.87	39.0
Toluene	2323873	93.5	89.8	ND	100	47.0 - 150	93.5	89.8	ug/L	4.04	41.0
trans-1,2-Dichloroethylene	2323873	88.1	83.0	ND	100	54.0 - 156	88.1	83.0	ug/L	5.96	45.0
trans-1,3-Dichloropropene	2323873	86.0	82.3	ND	100	17.0 - 183	86.0	82.3	ug/L	4.40	86.0
Trichloroethylene	2323873	84.4	80.1	ND	100	70.0 - 157	84.4	80.1	ug/L	5.23	48.0



QUALITY CONTROL



TYL1-A

City of TylerWest Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

Project
1113566

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MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Vinyl chloride	2323873	120	108	ND	100	0.100 - 251	120	108	ug/L	10.5	66.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
1,2-DCA-d4 (SURR)	1132590	LCS	18.8	20.0	ug/L	94.0	70.0 - 130	126640668
1,2-DCA-d4 (SURR)	1132590	LCS Dup	18.8	20.0	ug/L	94.0	70.0 - 130	126640669
1,2-DCA-d4 (SURR)	1132590	Blank	18.6	20.0	ug/L	93.0	70.0 - 130	126640670
Bromofluorobenzene (SURR)	1132590	LCS	19.8	20.0	ug/L	99.0	70.0 - 130	126640668
Bromofluorobenzene (SURR)	1132590	LCS Dup	19.5	20.0	ug/L	97.5	70.0 - 130	126640669
Bromofluorobenzene (SURR)	1132590	Blank	20.4	20.0	ug/L	102	70.0 - 130	126640670
Dibromofluoromethane (SURR)	1132590	LCS	18.7	20.0	ug/L	93.5	70.0 - 130	126640668
Dibromofluoromethane (SURR)	1132590	LCS Dup	18.5	20.0	ug/L	92.5	70.0 - 130	126640669
Dibromofluoromethane (SURR)	1132590	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640670
TolueneD8 (SURR)	1132590	LCS	18.3	20.0	ug/L	91.5	70.0 - 130	126640668
TolueneD8 (SURR)	1132590	LCS Dup	18.2	20.0	ug/L	91.0	70.0 - 130	126640669
TolueneD8 (SURR)	1132590	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640670
1,2-DCA-d4 (SURR)	2323484	Unknown	19.0	20.0	ug/L	95.0	70.0 - 130	126640674
Bromofluorobenzene (SURR)	2323484	Unknown	18.7	20.0	ug/L	93.5	70.0 - 130	126640674
Dibromofluoromethane (SURR)	2323484	Unknown	19.1	20.0	ug/L	95.5	70.0 - 130	126640674
TolueneD8 (SURR)	2323484	Unknown	18.8	20.0	ug/L	94.0	70.0 - 130	126640674
1,2-DCA-d4 (SURR)	2323873	MS	19.0	20.0	ug/L	95.0	70.0 - 130	126640676
1,2-DCA-d4 (SURR)	2323873	MSD	19.4	20.0	ug/L	97.0	70.0 - 130	126640677
Bromofluorobenzene (SURR)	2323873	MS	18.8	20.0	ug/L	94.0	70.0 - 130	126640676
Bromofluorobenzene (SURR)	2323873	MSD	19.1	20.0	ug/L	95.5	70.0 - 130	126640677
Dibromofluoromethane (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640676
Dibromofluoromethane (SURR)	2323873	MSD	19.0	20.0	ug/L	95.0	70.0 - 130	126640677
TolueneD8 (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640676
TolueneD8 (SURR)	2323873	MSD	18.6	20.0	ug/L	93.0	70.0 - 130	126640677

Analytical Set

1132591

EPA 624.1

BFB

Parameter	Sample	RefMass	Reading	%	Limits%	File
BFB Mass 173	1132591	174	174	1.2	0 - 2.00	126640678
BFB Mass 174	1132591	95.0	14416	66.8	50.0 - 100	126640678
BFB Mass 175	1132591	174	1220	8.5	5.00 - 9.00	126640678
BFB Mass 176	1132591	174	14075	97.6	95.0 - 101	126640678
BFB Mass 177	1132591	176	952	6.8	5.00 - 9.00	126640678
BFB Mass 50	1132591	95.0	5183	24.0	15.0 - 40.0	126640678
BFB Mass 75	1132591	95.0	11553	53.5	30.0 - 60.0	126640678
BFB Mass 95	1132591	95.0	21592	100.0	100 - 100	126640678
BFB Mass 96	1132591	95.0	1427	6.6	5.00 - 9.00	126640678

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
m- and p-Xylene	1132591	ND	1.22	2.00	ug/L	126640682

Email: Kilgore.ProjectManagement@spllabs.com



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QUALITY CONTROL



TYL1-A

City of TylerWest Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

Project
1113566

Printed 08/22/2024

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
o-Xylene	1132591	ND	0.576	1.00	ug/L	126640682

IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132591	LCS	129800	133400	66710	200100	126640680	1132591
1,4-DichlorobenzeneD4 (ISTD)	1132591	LCS Dup	131500	133400	66710	200100	126640681	1132591
1,4-DichlorobenzeneD4 (ISTD)	1132591	Blank	115200	133400	66710	200100	126640682	1132591
ChlorobenzeneD5 (ISTD)	1132591	LCS	240700	232100	116100	348200	126640680	1132591
ChlorobenzeneD5 (ISTD)	1132591	LCS Dup	243600	232100	116100	348200	126640681	1132591
ChlorobenzeneD5 (ISTD)	1132591	Blank	235400	232100	116100	348200	126640682	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323507	Unknown	120200	133400	66710	200100	126640684	1132591
ChlorobenzeneD5 (ISTD)	2323507	Unknown	232100	232100	116100	348200	126640684	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	121700	133400	66710	200100	126640686	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	123000	133400	66710	200100	126640687	1132591
ChlorobenzeneD5 (ISTD)	2323873	MS	215200	232100	116100	348200	126640686	1132591
ChlorobenzeneD5 (ISTD)	2323873	MSD	221400	232100	116100	348200	126640687	1132591

IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-DichlorobenzeneD4 (ISTD)	1132591	LCS	11.97	11.97	11.91	12.03	126640680	1132591
1,4-DichlorobenzeneD4 (ISTD)	1132591	LCS Dup	11.96	11.97	11.91	12.03	126640681	1132591
1,4-DichlorobenzeneD4 (ISTD)	1132591	Blank	11.97	11.97	11.91	12.03	126640682	1132591
ChlorobenzeneD5 (ISTD)	1132591	LCS	9.597	9.597	9.537	9.657	126640680	1132591
ChlorobenzeneD5 (ISTD)	1132591	LCS Dup	9.597	9.597	9.537	9.657	126640681	1132591
ChlorobenzeneD5 (ISTD)	1132591	Blank	9.597	9.597	9.537	9.657	126640682	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323507	Unknown	11.96	11.97	11.91	12.03	126640684	1132591
ChlorobenzeneD5 (ISTD)	2323507	Unknown	9.597	9.597	9.537	9.657	126640684	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323873	MS	11.97	11.97	11.91	12.03	126640686	1132591
1,4-DichlorobenzeneD4 (ISTD)	2323873	MSD	11.97	11.97	11.91	12.03	126640687	1132591
ChlorobenzeneD5 (ISTD)	2323873	MS	9.597	9.597	9.537	9.657	126640686	1132591
ChlorobenzeneD5 (ISTD)	2323873	MSD	9.591	9.597	9.537	9.657	126640687	1132591

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
m- and p-Xylene	1132591	40.7	40.3	40.0	77.3 - 117	102	101	ug/L	0.985	30.0
o-Xylene	1132591	20.0	19.6	20.0	76.8 - 116	100	98.0	ug/L	2.02	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
m- and p-Xylene	2323873	194	184	ND	200	3.93 - 113	97.0	92.0	ug/L	5.29	30.0
o-Xylene	2323873	94.0	91.2	ND	100	15.9 - 112	94.0	91.2	ug/L	3.02	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
1,2-DCA-d4 (SURR)	1132591	LCS	18.8	20.0	ug/L	94.0	70.0 - 130	126640680
1,2-DCA-d4 (SURR)	1132591	LCS Dup	18.8	20.0	ug/L	94.0	70.0 - 130	126640681
1,2-DCA-d4 (SURR)	1132591	Blank	18.6	20.0	ug/L	93.0	70.0 - 130	126640682

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QUALITY CONTROL



TYL1-A

City of TylerWest Plant
 Ryan Peden
 511 W. Locust
 P O 2039
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Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Bromofluorobenzene (SURR)	1132591	LCS	19.8	20.0	ug/L	99.0	70.0 - 130	126640680
Bromofluorobenzene (SURR)	1132591	LCS Dup	19.5	20.0	ug/L	97.5	70.0 - 130	126640681
Bromofluorobenzene (SURR)	1132591	Blank	20.4	20.0	ug/L	102	70.0 - 130	126640682
Dibromofluoromethane (SURR)	1132591	LCS	18.7	20.0	ug/L	93.5	70.0 - 130	126640680
Dibromofluoromethane (SURR)	1132591	LCS Dup	18.5	20.0	ug/L	92.5	70.0 - 130	126640681
Dibromofluoromethane (SURR)	1132591	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640682
TolueneD8 (SURR)	1132591	LCS	18.3	20.0	ug/L	91.5	70.0 - 130	126640680
TolueneD8 (SURR)	1132591	LCS Dup	18.2	20.0	ug/L	91.0	70.0 - 130	126640681
TolueneD8 (SURR)	1132591	Blank	17.8	20.0	ug/L	89.0	70.0 - 130	126640682
1,2-DCA-d4 (SURR)	2323507	Unknown	19.3	20.0	ug/L	96.5	70.0 - 130	126640684
Bromofluorobenzene (SURR)	2323507	Unknown	18.8	20.0	ug/L	94.0	70.0 - 130	126640684
Dibromofluoromethane (SURR)	2323507	Unknown	18.0	20.0	ug/L	90.0	70.0 - 130	126640684
TolueneD8 (SURR)	2323507	Unknown	18.4	20.0	ug/L	92.0	70.0 - 130	126640684
1,2-DCA-d4 (SURR)	2323873	MS	19.0	20.0	ug/L	95.0	70.0 - 130	126640686
1,2-DCA-d4 (SURR)	2323873	MSD	19.4	20.0	ug/L	97.0	70.0 - 130	126640687
Bromofluorobenzene (SURR)	2323873	MS	18.8	20.0	ug/L	94.0	70.0 - 130	126640686
Bromofluorobenzene (SURR)	2323873	MSD	19.1	20.0	ug/L	95.5	70.0 - 130	126640687
Dibromofluoromethane (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640686
Dibromofluoromethane (SURR)	2323873	MSD	19.0	20.0	ug/L	95.0	70.0 - 130	126640687
TolueneD8 (SURR)	2323873	MS	18.4	20.0	ug/L	92.0	70.0 - 130	126640686
TolueneD8 (SURR)	2323873	MSD	18.6	20.0	ug/L	93.0	70.0 - 130	126640687

Analytical Set

1132712

EPA 1667

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Formaldehyde	1132304	ND	0.0317	0.050	mg/L	126643624

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Formaldehyde	1.38	1.43	mg/L	96.6	70.0 - 130	126643623
Formaldehyde	1.51	1.43	mg/L	106	70.0 - 130	126643629
Formaldehyde	1.50	1.43	mg/L	105	70.0 - 130	126643635

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Formaldehyde	1132304	0.0309	0.0324	0.100	2.69 - 179	30.9	32.4	mg/L	4.74	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Formaldehyde	2322773	0.0074	0.0096	ND	0.100	0.100 - 240	7.40	9.60	mg/L	25.9	30.0

Analytical Set

1132901

EPA 625.1

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
1,2,4,5-Tetrachlorobenzene	1132456	ND	0.517	1.00	ug/L	126647094

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<i>Parameter</i>	<i>PrepSet</i>	<i>Reading</i>	<i>MDL</i>	<i>MQL</i>	<i>Units</i>	<i>File</i>
1,2,4-Trichlorobenzene	1132456	ND	0.720	1.00	ug/L	126647094
1,2-Dichlorobenzene	1132456	ND	0.598	1.00	ug/L	126647094
1,2-DPH (as azobenzene)	1132456	ND	0.695	1.00	ug/L	126647094
1,3-Dichlorobenzene	1132456	ND	0.686	1.00	ug/L	126647094
1,4-Dichlorobenzene	1132456	ND	0.633	1.00	ug/L	126647094
2,4,5-Trichlorophenol	1132456	ND	0.734	1.00	ug/L	126647094
2,4,6-Trichlorophenol	1132456	ND	0.704	1.00	ug/L	126647094
2,4-Dichlorophenol	1132456	ND	0.567	1.00	ug/L	126647094
2,4-Dimethylphenol	1132456	ND	2.32	2.40	ug/L	126647094
2,4-Dinitrophenol	1132456	ND	8.07	9.00	ug/L	126647094
2,4-Dinitrotoluene	1132456	ND	3.35	3.50	ug/L	126647094
2,6-Dinitrotoluene	1132456	ND	0.675	1.00	ug/L	126647094
2-Chloronaphthalene	1132456	ND	0.333	1.00	ug/L	126647094
2-Chlorophenol	1132456	ND	0.367	1.00	ug/L	126647094
2-Methylphenol (o-Cresol)	1132456	ND	5.13	5.20	ug/L	126647094
2-Nitrophenol	1132456	ND	0.495	1.00	ug/L	126647094
3&4-Methylphenol (m&p-Cresol)	1132456	ND	6.15	6.20	ug/L	126647094
3,3'-Dichlorobenzidine	1132456	ND	4.79	5.00	ug/L	126647094
4,6-Dinitro-2-methylphenol	1132456	ND	7.88	8.00	ug/L	126647094
4-Bromophenyl phenyl ether	1132456	ND	0.311	1.00	ug/L	126647094
4-Chlorophenyl phenyl ethe	1132456	ND	0.281	1.00	ug/L	126647094
4-Nitrophenol	1132456	1.00	0.932	1.00	ug/L	126647094
Acenaphthene	1132456	ND	0.139	1.00	ug/L	126647094
Acenaphthylene	1132456	ND	0.202	1.00	ug/L	126647094
Anthracene	1132456	ND	0.538	1.00	ug/L	126647094
Benzidine	1132456	ND	19.9	20.0	ug/L	126647094
Benzo(a)anthracene	1132456	ND	0.627	1.00	ug/L	126647094
Benzo(a)pyrene	1132456	ND	0.478	1.00	ug/L	126647094
Benzo(b)fluoranthene	1132456	ND	0.517	1.00	ug/L	126647094
Benzo(ghi)perylene	1132456	ND	0.750	1.00	ug/L	126647094
Benzo(k)fluoranthene	1132456	ND	0.763	1.00	ug/L	126647094
Benzyl Butyl phthalate	1132456	ND	0.696	7.50	ug/L	126647094
Bis(2-chloroethoxy)methane	1132456	ND	0.312	1.00	ug/L	126647094
Bis(2-chloroethyl)ether	1132456	ND	0.434	1.00	ug/L	126647094
Bis(2-chloroisopropyl)ether	1132456	ND	0.448	1.00	ug/L	126647094
Bis(2-ethylhexyl)phthalate	1132456	ND	1.63	7.50	ug/L	126647094
Chrysene (Benzo(a)phenanthrene)	1132456	ND	0.575	1.00	ug/L	126647094
Dibenz(a,h)anthracene	1132456	ND	0.872	1.00	ug/L	126647094
Diethyl phthalate	1132456	ND	0.721	5.70	ug/L	126647094
Dimethyl phthalate	1132456	ND	0.497	4.80	ug/L	126647094
Di-n-butylphthalate	1132456	ND	0.834	7.50	ug/L	126647094
Di-n-octylphthalate	1132456	ND	0.782	1.00	ug/L	126647094
Fluoranthene(Benzo(j,k)fluorene)	1132456	ND	0.772	1.00	ug/L	126647094
Fluorene	1132456	ND	0.512	1.00	ug/L	126647094
Hexachlorobenzene	1132456	ND	0.187	1.00	ug/L	126647094

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<u>Parameter</u>	<u>PrepSet</u>	<u>Reading</u>	<u>MDL</u>	<u>MDL</u>	<u>Units</u>	<u>File</u>
Hexachlorobutadiene	1132456	ND	0.618	1.00	ug/L	126647094
Hexachlorocyclopentadiene	1132456	ND	8.69	9.00	ug/L	126647094
Hexachloroethane	1132456	ND	0.789	1.00	ug/L	126647094
Indeno(1,2,3-cd)pyrene	1132456	ND	0.793	1.00	ug/L	126647094
Isophorone	1132456	ND	0.468	1.00	ug/L	126647094
Naphthalene	1132456	ND	0.387	1.00	ug/L	126647094
Nitrobenzene	1132456	ND	0.390	1.00	ug/L	126647094
n-Nitrosodiethylamine	1132456	ND	0.282	1.00	ug/L	126647094
N-Nitrosodimethylamine	1132456	ND	6.64	7.00	ug/L	126647094
n-Nitroso-di-n-butylamine	1132456	ND	0.403	1.00	ug/L	126647094
N-Nitrosodi-n-propylamine	1132456	ND	0.777	1.00	ug/L	126647094
N-Nitrosodiphenylamine (as DPA	1132456	ND	0.427	1.00	ug/L	126647094
p-Chloro-m-Cresol (4-Chloro-3-me	1132456	ND	2.35	2.40	ug/L	126647094
Pentachlorobenzene	1132456	ND	0.420	1.00	ug/L	126647094
Pentachlorophenol	1132456	0.880	0.129	1.00	ug/L	126647094
Phenanthrene	1132456	ND	0.624	1.00	ug/L	126647094
Phenol	1132456	ND	1.50	1.50	ug/L	126647094
Pyrene	1132456	ND	0.587	1.00	ug/L	126647094
Pyridine	1132456	ND	5.33	5.40	ug/L	126647094

CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
1,2,4,5-Tetrachlorobenzene	46300	50000	ug/L	92.6	60.0 - 140	126647093
1,2,4-Trichlorobenzene	48600	50000	ug/L	97.2	61.0 - 130	126647093
1,2-Dichlorobenzene	50200	50000	ug/L	100	60.0 - 140	126647093
1,2-DPH (as azobenzene)	43400	50000	ug/L	86.8	60.0 - 140	126647093
1,3-Dichlorobenzene	50600	50000	ug/L	101	60.0 - 140	126647093
1,4-Dichlorobenzene	50000	50000	ug/L	100	60.0 - 140	126647093
2,4,5-Trichlorophenol	50600	50000	ug/L	101	69.0 - 130	126647093
2,4,6-Trichlorophenol	47700	50000	ug/L	95.4	69.0 - 130	126647093
2,4-Dichlorophenol	48100	50000	ug/L	96.2	64.0 - 130	126647093
2,4-Dimethylphenol	43300	50000	ug/L	86.6	58.0 - 130	126647093
2,4-Dinitrophenol	46900	50000	ug/L	93.8	39.0 - 173	126647093
2,4-Dinitrotoluene	64500	50000	ug/L	129	53.0 - 130	126647093
2,6-Dinitrotoluene	57400	50000	ug/L	115	68.0 - 137	126647093
2-Chloronaphthalene	44300	50000	ug/L	88.6	70.0 - 130	126647093
2-Chlorophenol	49200	50000	ug/L	98.4	55.0 - 130	126647093
2-Methylphenol (o-Cresol)	46000	50000	ug/L	92.0	60.0 - 140	126647093
2-Nitrophenol	47600	50000	ug/L	95.2	61.0 - 163	126647093
3&4-Methylphenol (m&p-Cresol)	48000	50000	ug/L	96.0	60.0 - 140	126647093
3,3'-Dichlorobenzidine	51600	50000	ug/L	103	18.0 - 213	126647093
4,6-Dinitro-2-methylphenol	51700	50000	ug/L	103	56.0 - 130	126647093
4-Bromophenyl phenyl ether	50000	50000	ug/L	100	70.0 - 130	126647093
4-Chlorophenyl phenyl ethe	53200	50000	ug/L	106	57.0 - 145	126647093
4-Nitrophenol	45400	50000	ug/L	90.8	35.0 - 135	126647093

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CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Acenaphthene	51100	50000	ug/L	102	70.0 - 130	126647093
Acenaphthylene	51000	50000	ug/L	102	60.0 - 130	126647093
Anthracene	52200	50000	ug/L	104	58.0 - 130	126647093
Benzidine	25000	50000	ug/L	50.0	20.0 - 180	126647093
Benzo(a)anthracene	59400	50000	ug/L	119	42.0 - 133	126647093
Benzo(a)pyrene	54000	50000	ug/L	108	32.0 - 148	126647093
Benzo(b)fluoranthene	52000	50000	ug/L	104	42.0 - 140	126647093
Benzo(ghi)perylene	45000	50000	ug/L	90.0	13.0 - 195	126647093
Benzo(k)fluoranthene	60200	50000	ug/L	120	25.0 - 146	126647093
Benzyl Butyl phthalate	64300	50000	ug/L	129	43.0 - 140	126647093
Bis(2-chloroethoxy)methane	48800	50000	ug/L	97.6	52.0 - 164	126647093
Bis(2-chloroethyl)ether	47600	50000	ug/L	95.2	52.0 - 130	126647093
Bis(2-chloroisopropyl)ether	50000	50000	ug/L	100	63.0 - 139	126647093
Bis(2-ethylhexyl)phthalate	64400	50000	ug/L	129	43.0 - 137	126647093
Chrysene (Benzo(a)phenanthrene)	60100	50000	ug/L	120	44.0 - 140	126647093
Dibenz(a,h)anthracene	42700	50000	ug/L	85.4	13.0 - 200	126647093
Diethyl phthalate	54700	50000	ug/L	109	47.0 - 130	126647093
Dimethyl phthalate	53900	50000	ug/L	108	50.0 - 130	126647093
Di-n-butylphthalate	51900	50000	ug/L	104	52.0 - 130	126647093
Di-n-octylphthalate	67300	50000	ug/L	135	21.0 - 132	* 126647093
Fluoranthene(Benzo(j,k)fluorene)	54800	50000	ug/L	110	47.0 - 130	126647093
Fluorene	55000	50000	ug/L	110	70.0 - 130	126647093
Hexachlorobenzene	51600	50000	ug/L	103	38.0 - 142	126647093
Hexachlorobutadiene	48400	50000	ug/L	96.8	68.0 - 130	126647093
Hexachlorocyclopentadiene	42400	50000	ug/L	84.8	60.0 - 140	126647093
Hexachloroethane	49800	50000	ug/L	99.6	55.0 - 130	126647093
Indeno(1,2,3-cd)pyrene	41900	50000	ug/L	83.8	13.0 - 151	126647093
Isophorone	53000	50000	ug/L	106	52.0 - 180	126647093
Naphthalene	47900	50000	ug/L	95.8	70.0 - 130	126647093
Nitrobenzene	47600	50000	ug/L	95.2	54.0 - 158	126647093
n-Nitrosodiethylamine	48300	50000	ug/L	96.6	60.0 - 140	126647093
N-Nitrosodimethylamine	43900	50000	ug/L	87.8	60.0 - 140	126647093
n-Nitroso-di-n-butylamine	49900	50000	ug/L	99.8	60.0 - 140	126647093
N-Nitrosodi-n-propylamine	54700	50000	ug/L	109	59.0 - 170	126647093
N-Nitrosodiphenylamine (as DPA	42700	50000	ug/L	85.4	60.0 - 140	126647093
p-Chloro-m-Cresol (4-Chloro-3-me	50600	50000	ug/L	101	68.0 - 130	126647093
Pentachlorobenzene	49100	50000	ug/L	98.2	60.0 - 140	126647093
Pentachlorophenol	50000	50000	ug/L	100	42.0 - 152	126647093
Phenanthrene	49900	50000	ug/L	99.8	67.0 - 130	126647093
Phenol	49500	50000	ug/L	99.0	48.0 - 130	126647093
Pyrene	52500	50000	ug/L	105	70.0 - 130	126647093
Pyridine	44700	50000	ug/L	89.4	60.0 - 140	126647093

DFTPP

<u>Parameter</u>	<u>RefMass</u>	<u>Reading</u>	<u>%</u>	<u>Limits%</u>	<u>File</u>
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DFTPP

Parameter	RefMass	Reading	%	Limits%	File	
DFTPP Mass 127	626327	198	65602	47.2	40.0 - 60.0	126647091
DFTPP Mass 197	626327	198	0	0.0	0 - 1.00	126647091
DFTPP Mass 198	626327	198	138960	100.0	100 - 100	126647091
DFTPP Mass 199	626327	198	9833	7.1	5.00 - 9.00	126647091
DFTPP Mass 275	626327	198	30056	21.6	10.0 - 30.0	126647091
DFTPP Mass 365	626327	198	3099	2.2	1.00 - 100	126647091
DFTPP Mass 441	626327	443	10674	79.5	0 - 100	126647091
DFTPP Mass 442	626327	198	71218	51.3	40.0 - 100	126647091
DFTPP Mass 443	626327	442	13434	18.9	17.0 - 23.0	126647091
DFTPP Mass 51	626327	198	42387	30.5	30.0 - 60.0	126647091
DFTPP Mass 68	626327	69.0	0	0.0	0 - 2.00	126647091
DFTPP Mass 69	626327	198	50285	36.2	0 - 100	126647091
DFTPP Mass 70	626327	69.0	240	0.5	0 - 2.00	126647091

LCS Dup

Parameter	PrepSet	LCS	LCS D	Known	Limits%	LCS%	LCS D%	Units	RPD	Limit%
1,2,4,5-Tetrachlorobenzene	1132456	14.5	13.8	25.0	27.5 - 85.5	58.0	55.2	ug/L	4.95	50.0
1,2,4-Trichlorobenzene	1132456	12.9	12.1	25.0	44.0 - 142	51.6	48.4	ug/L	6.40	50.0
1,2-Dichlorobenzene	1132456	12.3	11.7	25.0	23.0 - 81.8	49.2	46.8	ug/L	5.00	50.0
1,2-DPH (as azobenzene)	1132456	18.0	17.2	25.0	12.6 - 110	72.0	68.8	ug/L	4.55	50.0
1,3-Dichlorobenzene	1132456	11.4	10.8	25.0	21.1 - 80.5	45.6	43.2	ug/L	5.41	50.0
1,4-Dichlorobenzene	1132456	11.6	11.1	25.0	21.4 - 76.9	46.4	44.4	ug/L	4.41	50.0
2,4,5-Trichlorophenol	1132456	17.7	16.9	25.0	51.3 - 109	70.8	67.6	ug/L	4.62	50.0
2,4,6-Trichlorophenol	1132456	17.3	16.5	25.0	37.0 - 144	69.2	66.0	ug/L	4.73	58.0
2,4-Dichlorophenol	1132456	17.0	15.8	25.0	39.0 - 135	68.0	63.2	ug/L	7.32	50.0
2,4-Dimethylphenol	1132456	9.51	9.80	25.0	23.0 - 120	38.0	39.2	ug/L	3.11	68.0
2,4-Dinitrophenol	1132456	13.4	11.6	25.0	0.100 - 191	53.6	46.4	ug/L	14.4	132
2,4-Dinitrotoluene	1132456	21.2	19.4	25.0	39.0 - 139	84.8	77.6	ug/L	8.87	42.0
2,6-Dinitrotoluene	1132456	20.4	19.1	25.0	50.0 - 158	81.6	76.4	ug/L	6.58	48.0
2-Chloronaphthalene	1132456	16.6	15.6	25.0	60.0 - 120	66.4	62.4	ug/L	6.21	24.0
2-Chlorophenol	1132456	16.1	14.7	25.0	23.0 - 134	64.4	58.8	ug/L	9.09	61.0
2-Methylphenol (o-Cresol)	1132456	14.0	13.2	25.0	38.9 - 76.1	56.0	52.8	ug/L	5.88	50.0
2-Nitrophenol	1132456	16.6	15.3	25.0	29.0 - 182	66.4	61.2	ug/L	8.15	55.0
3&4-Methylphenol (m&p-Cresol)	1132456	13.2	12.3	25.0	33.0 - 70.4	52.8	49.2	ug/L	7.06	50.0
3,3'-Dichlorobenzidine	1132456	20.0	18.8	25.0	0.100 - 262	80.0	75.2	ug/L	6.19	108
4,6-Dinitro-2-methylphenol	1132456	16.3	15.4	25.0	0.100 - 181	65.2	61.6	ug/L	5.68	203
4-Bromophenyl phenyl ether	1132456	17.8	17.4	25.0	53.0 - 127	71.2	69.6	ug/L	2.27	43.0
4-Chlorophenyl phenyl ethe	1132456	18.4	17.4	25.0	25.0 - 158	73.6	69.6	ug/L	5.59	61.0
4-Nitrophenol	1132456	7.55	6.78	25.0	0.100 - 132	30.2	27.1	ug/L	10.8	131
Acenaphthene	1132456	17.8	17.3	25.0	47.0 - 145	71.2	69.2	ug/L	2.85	48.0
Acenaphthylene	1132456	17.6	16.7	25.0	33.0 - 145	70.4	66.8	ug/L	5.25	74.0
Anthracene	1132456	19.4	18.4	25.0	27.0 - 133	77.6	73.6	ug/L	5.29	66.0
Benzidine	1132456	3.86	2.94	25.0	0.100 - 36.9	15.4	11.8	ug/L	26.5	90.0
Benzo(a)anthracene	1132456	18.9	18.0	25.0	33.0 - 143	75.6	72.0	ug/L	4.88	53.0
Benzo(a)pyrene	1132456	19.2	18.3	25.0	17.0 - 163	76.8	73.2	ug/L	4.80	72.0



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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Benzo(b)fluoranthene	1132456	17.5	16.7	25.0	24.0 - 159	70.0	66.8	ug/L	4.68	71.0
Benzo(ghi)perylene	1132456	14.6	15.0	25.0	0.100 - 219	58.4	60.0	ug/L	2.70	97.0
Benzo(k)fluoranthene	1132456	20.5	19.2	25.0	11.0 - 162	82.0	76.8	ug/L	6.55	63.0
Benzyl Butyl phthalate	1132456	17.4	16.7	25.0	0.100 - 152	69.6	66.8	ug/L	4.11	60.0
Bis(2-chloroethoxy)methane	1132456	18.2	17.0	25.0	33.0 - 184	72.8	68.0	ug/L	6.82	54.0
Bis(2-chloroethyl)ether	1132456	16.8	15.5	25.0	12.0 - 158	67.2	62.0	ug/L	8.05	108
Bis(2-chloroisopropyl)ether	1132456	15.8	14.7	25.0	36.0 - 166	63.2	58.8	ug/L	7.21	76.0
Bis(2-ethylhexyl)phthalate	1132456	16.5	15.7	25.0	8.00 - 158	66.0	62.8	ug/L	4.97	82.0
Chrysene (Benzo(a)phenanthrene)	1132456	19.5	18.6	25.0	17.0 - 168	78.0	74.4	ug/L	4.72	87.0
Dibenz(a,h)anthracene	1132456	15.5	15.5	25.0	0.100 - 227	62.0	62.0	ug/L	0	126
Diethyl phthalate	1132456	20.5	19.4	25.0	0.100 - 120	82.0	77.6	ug/L	5.51	100
Dimethyl phthalate	1132456	20.0	19.0	25.0	0.100 - 120	80.0	76.0	ug/L	5.13	183
Di-n-butylphthalate	1132456	20.7	19.4	25.0	1.00 - 120	82.8	77.6	ug/L	6.48	47.0
Di-n-octylphthalate	1132456	15.3	14.3	25.0	4.00 - 146	61.2	57.2	ug/L	6.76	69.0
Fluoranthene(Benzo(j,k)fluorene)	1132456	21.9	20.9	25.0	26.0 - 137	87.6	83.6	ug/L	4.67	66.0
Fluorene	1132456	19.3	18.5	25.0	59.0 - 121	77.2	74.0	ug/L	4.23	38.0
Hexachlorobenzene	1132456	18.0	17.2	25.0	0.100 - 152	72.0	68.8	ug/L	4.55	55.0
Hexachlorobutadiene	1132456	10.2	9.84	25.0	24.0 - 120	40.8	39.4	ug/L	3.49	62.0
Hexachlorocyclopentadiene	1132456	7.59	6.84	25.0	3.97 - 68.7	30.4	27.4	ug/L	10.4	50.0
Hexachloroethane	1132456	9.97	9.50	25.0	40.0 - 120	39.9 *	38.0 *	ug/L	4.88	52.0
Indeno(1,2,3-cd)pyrene	1132456	15.5	15.8	25.0	0.100 - 171	62.0	63.2	ug/L	1.92	99.0
Isophorone	1132456	18.6	17.3	25.0	21.0 - 196	74.4	69.2	ug/L	7.24	93.0
Naphthalene	1132456	15.7	14.7	25.0	21.0 - 133	62.8	58.8	ug/L	6.58	65.0
Nitrobenzene	1132456	17.6	15.9	25.0	35.0 - 180	70.4	63.6	ug/L	10.1	62.0
n-Nitrosodiethylamine	1132456	17.8	16.4	25.0	18.0 - 100	71.2	65.6	ug/L	8.19	50.0
N-Nitrosodimethylamine	1132456	11.2	10.0	25.0	30.2 - 74.9	44.8	40.0	ug/L	11.3	50.0
n-Nitroso-di-n-butylamine	1132456	18.2	17.4	25.0	48.4 - 98.5	72.8	69.6	ug/L	4.49	50.0
N-Nitrosodi-n-propylamine	1132456	17.8	16.8	25.0	0.100 - 230	71.2	67.2	ug/L	5.78	87.0
N-Nitrosodiphenylamine (as DPA)	1132456	19.0	18.4	25.0	49.3 - 94.2	76.0	73.6	ug/L	3.21	50.0
p-Chloro-m-Cresol (4-Chloro-3-me	1132456	17.8	16.4	25.0	22.0 - 147	71.2	65.6	ug/L	8.19	70.0
Pentachlorobenzene	1132456	17.2	16.3	25.0	39.3 - 93.7	68.8	65.2	ug/L	5.37	50.0
Pentachlorophenol	1132456	14.8	13.8	25.0	14.0 - 176	59.2	55.2	ug/L	6.99	86.0
Phenanthrene	1132456	19.4	18.4	25.0	54.0 - 120	77.6	73.6	ug/L	5.29	39.0
Phenol	1132456	7.41	6.45	25.0	5.00 - 120	29.6	25.8	ug/L	13.7	64.0
Pyrene	1132456	16.6	16.8	25.0	52.0 - 120	66.4	67.2	ug/L	1.20	49.0
Pyridine	1132456	8.20	7.59	25.0	11.2 - 50.6	32.8	30.4	ug/L	7.59	50.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
2,4,6-Tribromophenol	626184	CCV	51000	100000	ug/L	51.0	10.0 - 150	126647093
2-Fluorophenol-SURR	626184	CCV	47800	100000	ug/L	47.8	10.0 - 150	126647093
4-Terphenyl-d14-SURR	626184	CCV	45600	50000	ug/L	91.2	30.0 - 150	126647093
Nitrobenzene-d5-SURR	626184	CCV	48200	50000	ug/L	96.4	30.0 - 150	126647093
Phenol-d6-SURR	626184	CCV	49600	100000	ug/L	49.6	10.0 - 150	126647093
2,4,6-Tribromophenol	1132456	Blank	59.9	100	ug/L	59.9	10.0 - 150	126647094

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Parameter	Sample	Type	Reading	Surrogate			Limits%	File
				Known	Units	Recover%		
2,4,6-Tribromophenol	1132456	LCS	61.8	100	ug/L	61.8	10.0 - 150	126647095
2,4,6-Tribromophenol	1132456	LCS Dup	58.7	100	ug/L	58.7	10.0 - 150	126647096
2-Fluorophenol-SURR	1132456	Blank	40600	100000	ug/L	40.6	10.0 - 150	126647094
2-Fluorophenol-SURR	1132456	LCS	38600	100000	ug/L	38.6	10.0 - 150	126647095
2-Fluorophenol-SURR	1132456	LCS Dup	35500	100000	ug/L	35.5	10.0 - 150	126647096
4-Terphenyl-d14-SURR	1132456	Blank	29600	50000	ug/L	59.2	30.0 - 150	126647094
4-Terphenyl-d14-SURR	1132456	LCS	29000	50000	ug/L	58.0	30.0 - 150	126647095
4-Terphenyl-d14-SURR	1132456	LCS Dup	28800	50000	ug/L	57.6	30.0 - 150	126647096
Nitrobenzene-d5-SURR	1132456	Blank	33500	50000	ug/L	67.0	30.0 - 150	126647094
Nitrobenzene-d5-SURR	1132456	LCS	32700	50000	ug/L	65.4	30.0 - 150	126647095
Nitrobenzene-d5-SURR	1132456	LCS Dup	30400	50000	ug/L	60.8	30.0 - 150	126647096
Phenol-d6-SURR	1132456	Blank	28500	100000	ug/L	28.5	10.0 - 150	126647094
Phenol-d6-SURR	1132456	LCS	26900	100000	ug/L	26.9	10.0 - 150	126647095
Phenol-d6-SURR	1132456	LCS Dup	24100	100000	ug/L	24.1	10.0 - 150	126647096
2,4,6-Tribromophenol	2323493	Unknown	56.0	98.5	ug/L	56.9	10.0 - 150	126647103
2-Fluorophenol-SURR	2323493	Unknown	34.9	98.5	ug/L	35.4	10.0 - 150	126647103
4-Terphenyl-d14-SURR	2323493	Unknown	35.0	49.3	ug/L	71.0	30.0 - 150	126647103
Nitrobenzene-d5-SURR	2323493	Unknown	29.9	49.3	ug/L	60.6	30.0 - 150	126647103
Phenol-d6-SURR	2323493	Unknown	24.6	98.5	ug/L	25.0	10.0 - 150	126647103

Analytical Set

1133099

EPA 625.1

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Resorcinol	1132456	ND	10.0	10.0	ug/L	126650600

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Resorcinol	42100	50000	ug/L	84.3	70.0 - 130	126650599

Analytical Set

1133537

EPA 604.1

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Hexachlorophene	1132983	ND	0.890	2.50	ug/L	126659659

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Hexachlorophene	5320	5000	ug/L	106	70.0 - 130	126659658
Hexachlorophene	5370	5000	ug/L	107	70.0 - 130	126659665
Hexachlorophene	5290	5000	ug/L	106	70.0 - 130	126659669
Hexachlorophene	5420	5000	ug/L	108	70.0 - 130	126659673
Hexachlorophene	5420	5000	ug/L	108	70.0 - 130	126659677
Hexachlorophene	5100	5000	ug/L	102	70.0 - 130	126659681
Hexachlorophene	5570	5000	ug/L	111	70.0 - 130	126659683
Hexachlorophene	5460	5000	ug/L	109	70.0 - 130	126659686
Hexachlorophene	5530	5000	ug/L	111	70.0 - 130	126659689

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Hexachlorophene	5940	5000	ug/L	119	70.0 - 130	126659690
Hexachlorophene	5910	5000	ug/L	118	70.0 - 130	126659694

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Hexachlorophene	1132983	26.8	32.2	50.0	25.5 - 145	53.6	64.4	ug/L	18.3	50.0

Analytical Set **1133583**

EPA 608.3

Blank

Parameter	PrepSet	Reading	MDL	MDL	Units	File
PCB-1016	1132657	ND	0.202	0.202	ug/L	126660756
PCB-1221	1132657	ND	0.143	0.200	ug/L	126660756
PCB-1232	1132657	ND	0.143	0.200	ug/L	126660756
PCB-1242	1132657	ND	0.192	0.200	ug/L	126660756
PCB-1248	1132657	ND	0.143	0.200	ug/L	126660756
PCB-1254	1132657	ND	0.143	0.200	ug/L	126660756
PCB-1260	1132657	ND	0.161	0.200	ug/L	126660756
PCB-1262	1132657	ND	0.198	0.200	ug/L	126660756
PCB-1268	1132657	ND	0.143	0.200	ug/L	126660756

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
PCB-1016	933	1000	ug/L	93.3	80.0 - 115	126660755
PCB-1016	1050	1000	ug/L	105	80.0 - 115	126660767
PCB-1016	1050	1000	ug/L	105	80.0 - 115	126660776
PCB-1260	930	1000	ug/L	93.0	80.0 - 115	126660755
PCB-1260	936	1000	ug/L	93.6	80.0 - 115	126660767
PCB-1260	1010	1000	ug/L	101	80.0 - 115	126660776

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
PCB-1016	1132657	741	804	1000	39.8 - 135	74.1	80.4	ug/L	8.16	30.0
PCB-1260	1132657	738	709	1000	36.1 - 134	73.8	70.9	ug/L	4.01	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Decachlorobiphenyl	1132657	Blank	53.1	100	ug/L	53.1	10.0 - 200	126660756
Tetrachloro-m-Xylene (Surr)	1132657	Blank	47.6	100	ug/L	47.6	10.0 - 200	126660756
Decachlorobiphenyl	2323493	Unknown	0.0204	0.101	ug/L	20.2	10.0 - 200	126660761
Tetrachloro-m-Xylene (Surr)	2323493	Unknown	0.023	0.101	ug/L	22.8	10.0 - 200	126660761

Analytical Set **1133653**

EPA 632

Blank

Parameter	PrepSet	Reading	MDL	MDL	Units	File
Carbaryl (Sevin)	1132654	ND	66.1	2500	ug/L	126661586
Diuron	1132654	156	44.4	45.0	ug/L	126661586

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Carbaryl (Sevin)	1060	1000	ug/L	106	70.0 - 130	126661585
Carbaryl (Sevin)	1080	1000	ug/L	108	70.0 - 130	126661589
Carbaryl (Sevin)	1060	1000	ug/L	106	70.0 - 130	126661593
Carbaryl (Sevin)	1100	1000	ug/L	110	70.0 - 130	126661596
Carbaryl (Sevin)	1130	1000	ug/L	113	70.0 - 130	126661599
Carbaryl (Sevin)	1140	1000	ug/L	114	70.0 - 130	126661602
Carbaryl (Sevin)	1080	1000	ug/L	108	70.0 - 130	126661603
Carbaryl (Sevin)	1090	1000	ug/L	109	70.0 - 130	126661605
Diuron	1050	1000	ug/L	105	70.0 - 130	126661585
Diuron	1060	1000	ug/L	106	70.0 - 130	126661589
Diuron	1070	1000	ug/L	107	70.0 - 130	126661593
Diuron	1100	1000	ug/L	110	70.0 - 130	126661596
Diuron	1060	1000	ug/L	106	70.0 - 130	126661599
Diuron	1130	1000	ug/L	113	70.0 - 130	126661602
Diuron	1080	1000	ug/L	108	70.0 - 130	126661603
Diuron	1070	1000	ug/L	107	70.0 - 130	126661605

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Carbaryl (Sevin)	1132654	921	1070	1000	17.1 - 131	92.1	107	ug/L	15.0	30.0
Diuron	1132654	125	206	1000	0.100 - 138	12.5	20.6	ug/L	48.9 *	30.0

Analytical Set

1133861

ASTM D7065-11

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Nonylphenol	1133467	ND	5.00	30.0	ug/L	126668390

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Nonylphenol	139000	150000	ug/L	92.9	70.0 - 130	126668389
Nonylphenol	142000	150000	ug/L	94.3	70.0 - 130	126668402

IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
Acenaphthene-d10-ISTD	624841	CCV	1057000	1057000	528300	1585000	126668389	624841
Acenaphthene-d10-ISTD	624841	CCV	1311000	1057000	528300	1585000	126668402	624841
Phenanthrene-d10-ISTD	624841	CCV	1366000	1366000	682900	2049000	126668389	624841
Phenanthrene-d10-ISTD	624841	CCV	1845000	1366000	682900	2049000	126668402	624841
Acenaphthene-d10-ISTD	1133467	Blank	638500	1057000	528300	1585000	126668390	1133467
Acenaphthene-d10-ISTD	1133467	LCS	684800	1057000	528300	1585000	126668391	1133467
Acenaphthene-d10-ISTD	1133467	LCS Dup	701600	1057000	528300	1585000	126668392	1133467
Phenanthrene-d10-ISTD	1133467	Blank	895200	1366000	682900	2049000	126668390	1133467
Phenanthrene-d10-ISTD	1133467	LCS	895000	1366000	682900	2049000	126668391	1133467
Phenanthrene-d10-ISTD	1133467	LCS Dup	912400	1366000	682900	2049000	126668392	1133467
Acenaphthene-d10-ISTD	2323493	Unknown	697500	1057000	528300	1585000	126668400	1133467
Phenanthrene-d10-ISTD	2323493	Unknown	1027000	1366000	682900	2049000	126668400	1133467

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IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
Acenaphthene-d10-ISTD	624841	CCV	6.653	6.653	6.593	6.713	126668389	624841
Acenaphthene-d10-ISTD	624841	CCV	6.653	6.653	6.593	6.713	126668402	624841
Phenanthrene-d10-ISTD	624841	CCV	7.862	7.862	7.802	7.922	126668389	624841
Phenanthrene-d10-ISTD	624841	CCV	7.868	7.862	7.802	7.922	126668402	624841
Acenaphthene-d10-ISTD	1133467	Blank	6.647	6.653	6.593	6.713	126668390	1133467
Acenaphthene-d10-ISTD	1133467	LCS	6.647	6.653	6.593	6.713	126668391	1133467
Acenaphthene-d10-ISTD	1133467	LCS Dup	6.647	6.653	6.593	6.713	126668392	1133467
Phenanthrene-d10-ISTD	1133467	Blank	7.856	7.862	7.802	7.922	126668390	1133467
Phenanthrene-d10-ISTD	1133467	LCS	7.862	7.862	7.802	7.922	126668391	1133467
Phenanthrene-d10-ISTD	1133467	LCS Dup	7.862	7.862	7.802	7.922	126668392	1133467
Acenaphthene-d10-ISTD	2323493	Unknown	6.648	6.653	6.593	6.713	126668400	1133467
Phenanthrene-d10-ISTD	2323493	Unknown	7.862	7.862	7.802	7.922	126668400	1133467

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Nonylphenol	1133467	70.8	73.2	150	56.0 - 112	47.2 *	48.8 *	ug/L	3.33	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Nonylphenol	2323201	103	99.7	ND	146	56.0 - 112	70.5	68.3	ug/L	3.26	22.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
4-Nonylphenol-SURR	624841	CCV	27700	25000	ug/L	111	50.0 - 130	126668389
4-Nonylphenol-SURR	624841	CCV	26900	25000	ug/L	108	50.0 - 130	126668402
4-Nonylphenol-SURR	1133467	Blank	16400	25000	ug/L	65.6	50.0 - 130	126668390
4-Nonylphenol-SURR	1133467	LCS	14500	25000	ug/L	58.0	50.0 - 130	126668391
4-Nonylphenol-SURR	1133467	LCS Dup	14000	25000	ug/L	56.0	50.0 - 130	126668392
4-Nonylphenol-SURR	2323493	Unknown	16.8	28.0	ug/L	60.0	50.0 - 130	126668400

Analytical Set

1134021

EPA 615

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
2,4 Dichlorophenoxyacetic acid	1132861	0.160	0.159	0.500	ug/L	126672298
2,4,5-TP (Silvex)	1132861	0.225	0.0893	0.300	ug/L	126672298

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
2,4 Dichlorophenoxyacetic acid	138	150	ug/L	91.9	80.0 - 115	126672289
2,4 Dichlorophenoxyacetic acid	117	150	ug/L	77.9	80.0 - 115 *	126672307
2,4 Dichlorophenoxyacetic acid	88.8	150	ug/L	59.2	80.0 - 115 *	126672311
2,4,5-TP (Silvex)	142	150	ug/L	94.5	80.0 - 115	126672289
2,4,5-TP (Silvex)	118	150	ug/L	78.5	80.0 - 115 *	126672307
2,4,5-TP (Silvex)	111	150	ug/L	74.3	80.0 - 115 *	126672311

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 Ryan Peden
 511 W. Locust
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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
2,4-Dichlorophenoxyacetic acid	1132861	1.01	0.986	1.00	0.100 - 319	101	98.6	ug/L	2.40	30.0
2,4,5-TP (Silvex)	1132861	1.01	1.04	1.00	0.100 - 244	101	104	ug/L	2.93	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
2,4-Dichlorophenylacetic Acid		CCV	151	200	ug/L	75.5	0.100 - 313	126672289
2,4-Dichlorophenylacetic Acid		CCV	139	200	ug/L	69.5	0.100 - 313	126672307
2,4-Dichlorophenylacetic Acid		CCV	144	200	ug/L	72.0	0.100 - 313	126672311
2,4-Dichlorophenylacetic Acid	1132861	Blank	141	200	ug/L	70.5	0.100 - 313	126672298
2,4-Dichlorophenylacetic Acid	1132861	LCS	148	200	ug/L	74.0	0.100 - 313	126672299
2,4-Dichlorophenylacetic Acid	1132861	LCS Dup	147	200	ug/L	73.5	0.100 - 313	126672300
2,4-Dichlorophenylacetic Acid	2323493	Unknown	2.73	2.01	ug/L	136	0.100 - 313	126672302

Analytical Set

1134122

EPA 608.3

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
4,4-DDD	1132655	ND	0.731	1.00	ug/L	126674202
4,4-DDE	1132655	ND	0.361	1.00	ug/L	126674202
4,4-DDT	1132655	ND	0.862	1.00	ug/L	126674202
Aldrin	1132655	ND	0.260	1.00	ug/L	126674202
Alpha-BHC(hexachlorocyclohexane)	1132655	ND	0.280	1.00	ug/L	126674202
Beta-BHC(hexachlorocyclohexane)	1132655	ND	0.579	1.00	ug/L	126674202
Delta-BHC(hexachlorocyclohexane)	1132655	ND	0.898	1.00	ug/L	126674202
Dieldrin	1132655	ND	0.162	1.00	ug/L	126674202
Endosulfan I (alpha)	1132655	ND	0.679	1.00	ug/L	126674202
Endosulfan II (beta)	1132655	ND	0.356	1.00	ug/L	126674202
Endosulfan sulfate	1132655	ND	0.588	1.00	ug/L	126674202
Endrin	1132655	ND	0.538	1.00	ug/L	126674202
Endrin aldehyde	1132655	ND	0.699	1.00	ug/L	126674202
Gamma-BHC(Lindane)	1132655	ND	0.385	1.00	ug/L	126674202
Heptachlor	1132655	ND	0.207	1.00	ug/L	126674202
Heptachlor epoxide	1132655	ND	0.660	1.00	ug/L	126674202
Kelthane (Dicofol)	1132655	ND	0.0208	0.100	ug/L	126674202
Methoxychlor	1132655	ND	0.898	1.00	ug/L	126674202
Mirex	1132655	ND	0.00889	0.015	ug/L	126674202
Toxaphene	1132655	ND	0.169	0.200	ug/L	126674202

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
4,4-DDD	53.7	50.0	ug/L	107	75.0 - 125	126674201
4,4-DDD	104	50.0	ug/L	208	75.0 - 125 *	126674207
4,4-DDE	49.8	50.0	ug/L	99.6	75.0 - 125	126674201
4,4-DDE	57.7	50.0	ug/L	115	75.0 - 125	126674207
4,4-DDT	49.7	50.0	ug/L	99.4	75.0 - 125	126674201
4,4-DDT	50.7	50.0	ug/L	101	75.0 - 125	126674214

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QUALITY CONTROL



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CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Aldrin	48.7	50.0	ug/L	97.4	75.0 - 125	126674201
Aldrin	47.2	50.0	ug/L	94.4	75.0 - 125	126674207
Alpha-BHC(hexachlorocyclohexane)	48.5	50.0	ug/L	97.0	75.0 - 125	126674201
Alpha-BHC(hexachlorocyclohexane)	51.6	50.0	ug/L	103	75.0 - 125	126674207
Beta-BHC(hexachlorocyclohexane)	50.2	50.0	ug/L	100	75.0 - 125	126674201
Beta-BHC(hexachlorocyclohexane)	56.8	50.0	ug/L	114	75.0 - 125	126674207
Delta-BHC(hexachlorocyclohexane)	50.4	50.0	ug/L	101	75.0 - 125	126674201
Delta-BHC(hexachlorocyclohexane)	57.9	50.0	ug/L	116	75.0 - 125	126674207
Dieldrin	48.9	50.0	ug/L	97.8	75.0 - 125	126674201
Dieldrin	54.0	50.0	ug/L	108	75.0 - 125	126674207
Endosulfan I (alpha)	47.2	50.0	ug/L	94.4	75.0 - 125	126674201
Endosulfan I (alpha)	48.9	50.0	ug/L	97.8	75.0 - 125	126674207
Endosulfan II (beta)	48.3	50.0	ug/L	96.6	75.0 - 125	126674201
Endosulfan II (beta)	51.1	50.0	ug/L	102	75.0 - 125	126674207
Endosulfan sulfate	45.9	50.0	ug/L	91.8	75.0 - 125	126674201
Endosulfan sulfate	84.6	50.0	ug/L	169	75.0 - 125 *	126674207
Endrin	48.8	50.0	ug/L	97.6	75.0 - 125	126674201
Endrin	54.2	50.0	ug/L	108	75.0 - 125	126674207
Endrin aldehyde	47.6	50.0	ug/L	95.2	75.0 - 125	126674201
Endrin aldehyde	42.1	50.0	ug/L	84.2	75.0 - 125	126674207
Gamma-BHC(Lindane)	50.0	50.0	ug/L	100	75.0 - 125	126674201
Gamma-BHC(Lindane)	53.8	50.0	ug/L	108	75.0 - 125	126674207
Heptachlor	47.2	50.0	ug/L	94.4	75.0 - 125	126674201
Heptachlor	46.5	50.0	ug/L	93.0	75.0 - 125	126674207
Heptachlor epoxide	46.5	50.0	ug/L	93.0	75.0 - 125	126674201
Heptachlor epoxide	42.5	50.0	ug/L	85.0	75.0 - 125	126674207
Kelthane (Dicofol)	97.3	100	ug/L	97.3	75.0 - 125	126674201
Kelthane (Dicofol)	44.5	100	ug/L	44.5	75.0 - 125 *	126674214
Methoxychlor	49.0	50.0	ug/L	98.0	75.0 - 125	126674201
Methoxychlor	61.5	50.0	ug/L	123	75.0 - 125	126674214
Mirex	48.9	50.0	ug/L	97.8	75.0 - 125	126674201
Mirex	57.4	50.0	ug/L	115	75.0 - 125	126674207
Mirex	59.8	50.0	ug/L	120	75.0 - 125	126674214

LCS Dup

<u>Parameter</u>	<u>PrepSet</u>	<u>LCS</u>	<u>LCSD</u>	<u>Known</u>	<u>Limits%</u>	<u>LCS%</u>	<u>LCSD%</u>	<u>Units</u>	<u>RPD</u>	<u>Limit%</u>
4,4-DDD	1132655	156	164	100	31.0 - 141	156 *	164 *	ug/L	5.00	39.0
4,4-DDE	1132655	101	105	100	30.0 - 145	101	105	ug/L	3.88	35.0
4,4-DDT	1132655	114	116	100	25.0 - 160	114	116	ug/L	1.74	42.0
Aldrin	1132655	75.4	73.9	100	42.0 - 140	75.4	73.9	ug/L	2.01	35.0
Alpha-BHC(hexachlorocyclohexane)	1132655	64.8	68.6	100	37.0 - 140	64.8	68.6	ug/L	5.70	36.0
Beta-BHC(hexachlorocyclohexane)	1132655	94.8	95.3	100	17.0 - 147	94.8	95.3	ug/L	0.526	44.0
Delta-BHC(hexachlorocyclohexane)	1132655	98.5	98.3	100	19.0 - 140	98.5	98.3	ug/L	0.203	52.0
Dieldrin	1132655	93.1	95.4	100	36.0 - 146	93.1	95.4	ug/L	2.44	49.0
Endosulfan I (alpha)	1132655	91.3	93.9	100	45.0 - 153	91.3	93.9	ug/L	2.81	28.0

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Endosulfan II (beta)	1132655	67.6	70.8	100	0.100 - 202	67.6	70.8	ug/L	4.62	53.0
Endosulfan sulfate	1132655	87.9	93.8	100	26.0 - 144	87.9	93.8	ug/L	6.49	38.0
Endrin	1132655	103	106	100	30.0 - 147	103	106	ug/L	2.87	48.0
Endrin aldehyde	1132655	89.8	92.3	100	37.6 - 158	89.8	92.3	ug/L	2.75	30.0
Gamma-BHC(Lindane)	1132655	92.3	90.2	100	32.0 - 140	92.3	90.2	ug/L	2.30	39.0
Heptachlor	1132655	80.4	76.0	100	34.0 - 140	80.4	76.0	ug/L	5.63	43.0
Heptachlor epoxide	1132655	83.2	84.9	100	37.0 - 142	83.2	84.9	ug/L	2.02	26.0
Kelthane (Dicofol)	1132655	1.83	1.91	1.00	70.0 - 130	183 *	191 *	ug/L	4.28	30.0
Methoxychlor	1132655	93.7	102	100	33.1 - 137	93.7	102	ug/L	8.48	30.0
Mirex	1132655	1.01	1.09	1.00	70.0 - 130	101	109	ug/L	7.62	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Decachlorobiphenyl	625249	CCV	49.3	100	ug/L	49.3	0.100 - 144	126674201
Decachlorobiphenyl	625249	CCV	51.7	100	ug/L	51.7	0.100 - 144	126674207
Decachlorobiphenyl	625249	CCV	54.7	100	ug/L	54.7	0.100 - 144	126674214
Tetrachloro-m-Xylene (Surr)	625249	CCV	44.2	100	ug/L	44.2	0.100 - 107	126674201
Tetrachloro-m-Xylene (Surr)	625249	CCV	41.6	100	ug/L	41.6	0.100 - 107	126674207
Tetrachloro-m-Xylene (Surr)	625249	CCV	43.1	100	ug/L	43.1	0.100 - 107	126674214
Decachlorobiphenyl	1132655	Blank	53.1	100	ug/L	53.1	0.100 - 144	126674202
Decachlorobiphenyl	1132655	LCS	83.1	100	ug/L	83.1	0.100 - 144	126674203
Decachlorobiphenyl	1132655	LCS Dup	96.4	100	ug/L	96.4	0.100 - 144	126674204
Tetrachloro-m-Xylene (Surr)	1132655	Blank	47.6	100	ug/L	47.6	0.100 - 107	126674202
Tetrachloro-m-Xylene (Surr)	1132655	LCS	63.4	100	ug/L	63.4	0.100 - 107	126674203
Tetrachloro-m-Xylene (Surr)	1132655	LCS Dup	61.5	100	ug/L	61.5	0.100 - 107	126674204
Decachlorobiphenyl	2323493	Unknown	0.0204	0.101	ug/L	20.2	0.100 - 144	126674206
Tetrachloro-m-Xylene (Surr)	2323493	Unknown	0.023	0.101	ug/L	22.8	0.100 - 107	126674206

Analytical Set

1134416

EPA 614

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Azinphos-methyl (Guthion)	1132656	ND	41.4	50.0	ug/L	126679602
Chlorpyrifos	1132656	ND	22.6	50.0	ug/L	126679602
Demeton	1132656	ND	31.9	50.0	ug/L	126679602
Diazinon	1132656	ND	19.7	50.0	ug/L	126679602
Malathion	1132656	ND	24.8	50.0	ug/L	126679602
Parathion, ethyl	1132656	ND	23.9	50.0	ug/L	126679602
Parathion, methyl	1132656	ND	27.4	50.0	ug/L	126679602

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Azinphos-methyl (Guthion)	1090	1000	ug/L	109	37.5 - 164	126679655
Azinphos-methyl (Guthion)	1900	1000	ug/L	190	37.5 - 164 *	126679601
Azinphos-methyl (Guthion)	2060	1000	ug/L	206	37.5 - 164 *	126679607
Chlorpyrifos	1120	1000	ug/L	112	45.4 - 176	126679655

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Chlorpyrifos	1320	1000	ug/L	132	45.4 - 176	126679601
Chlorpyrifos	1660	1000	ug/L	166	45.4 - 176	126679607
Demeton	1070	1000	ug/L	107	58.6 - 150	126679655
Demeton	2900	1000	ug/L	290	58.6 - 150 *	126679601
Demeton	5280	1000	ug/L	528	58.6 - 150 *	126679607
Diazinon	1080	1000	ug/L	108	65.4 - 138	126679655
Diazinon	1180	1000	ug/L	118	65.4 - 138	126679601
Diazinon	1430	1000	ug/L	143	65.4 - 138 *	126679607
Malathion	1090	1000	ug/L	109	49.5 - 160	126679655
Malathion	1270	1000	ug/L	127	49.5 - 160	126679601
Malathion	1590	1000	ug/L	159	49.5 - 160	126679607
Parathion, ethyl	1040	1000	ug/L	104	56.0 - 142	126679655
Parathion, ethyl	1350	1000	ug/L	135	56.0 - 142	126679601
Parathion, ethyl	1650	1000	ug/L	165	56.0 - 142 *	126679607
Parathion, methyl	1060	1000	ug/L	106	12.6 - 194	126679655
Parathion, methyl	1540	1000	ug/L	154	12.6 - 194	126679601
Parathion, methyl	1800	1000	ug/L	180	12.6 - 194	126679607

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Azinphos-methyl (Guthion)	1132656	802	832	1000	0.100 - 155	80.2	83.2	ug/L	3.67	30.0
Chlorpyrifos	1132656	540	584	1000	3.37 - 129	54.0	58.4	ug/L	7.83	30.0
Demeton	1132656	857	892	1000	0.100 - 109	85.7	89.2	ug/L	4.00	30.0
Diazinon	1132656	400	445	1000	0.100 - 125	40.0	44.5	ug/L	10.7	30.0
Malathion	1132656	489	530	1000	0.100 - 130	48.9	53.0	ug/L	8.05	30.0
Parathion, ethyl	1132656	474	487	1000	0.100 - 122	47.4	48.7	ug/L	2.71	30.0
Parathion, methyl	1132656	816	731	1000	0.100 - 131	81.6	73.1	ug/L	11.0	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Tributylphosphate		CCV	1060	2000	ug/L	53.0	0.100 - 106	126679655
Tributylphosphate		CCV	1260	2000	ug/L	63.0	0.100 - 106	126679601
Tributylphosphate		CCV	1420	2000	ug/L	71.0	0.100 - 106	126679607
Triphenylphosphate		CCV	1090	2000	ug/L	54.5	0.100 - 172	126679655
Triphenylphosphate		CCV	1840	2000	ug/L	92.0	0.100 - 172	126679601
Triphenylphosphate		CCV	1870	2000	ug/L	93.5	0.100 - 172	126679607
Tributylphosphate	1132656	Blank	450	2000	ug/L	22.5	0.100 - 106	126679602
Tributylphosphate	1132656	LCS	586	2000	ug/L	29.3	0.100 - 106	126679603
Tributylphosphate	1132656	LCS Dup	621	2000	ug/L	31.0	0.100 - 106	126679604
Triphenylphosphate	1132656	Blank	749	2000	ug/L	37.4	0.100 - 172	126679602
Triphenylphosphate	1132656	LCS	869	2000	ug/L	43.4	0.100 - 172	126679603
Triphenylphosphate	1132656	LCS Dup	922	2000	ug/L	46.1	0.100 - 172	126679604
Tributylphosphate	2323493	Unknown	0.559	2.02	ug/L	27.7	0.100 - 106	126679606
Triphenylphosphate	2323493	Unknown	0.923	2.02	ug/L	45.7	0.100 - 172	126679606

Analytical Set 1134418

EPA 614

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Parameter	PrepSet	Reading	MDL	MQL	Units	File
Diazinon	1132656	ND	19.7	50.0	ug/L	126679623
Oxo-diazinon	1132656	ND	0.0279	0.050	ug/L	126679623

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Diazinon	1080	1000	ug/L	108	65.4 - 138	126679657
Diazinon	1180	1000	ug/L	118	65.4 - 138	126679622
Diazinon	1430	1000	ug/L	143	65.4 - 138 *	126679628
Oxo-diazinon	1070	1000	ug/L	107	42.3 - 178	126679657
Oxo-diazinon	1900	1000	ug/L	190	42.3 - 178 *	126679622
Oxo-diazinon	2610	1000	ug/L	261	42.3 - 178 *	126679628

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Diazinon	1132656	400	445	1000	0.100 - 125	40.0	44.5	ug/L	10.7	30.0
Oxo-diazinon	1132656	0.880	0.903	1.00	0.100 - 156	88.0	90.3	ug/L	2.58	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Tributylphosphate		CCV	1060	2000	ug/L	53.0	0.100 - 106	126679657
Tributylphosphate		CCV	1260	2000	ug/L	63.0	0.100 - 106	126679622
Tributylphosphate		CCV	1420	2000	ug/L	71.0	0.100 - 106	126679628
Triphenylphosphate		CCV	1090	2000	ug/L	54.5	0.100 - 172	126679657
Triphenylphosphate		CCV	1840	2000	ug/L	92.0	0.100 - 172	126679622
Triphenylphosphate		CCV	1870	2000	ug/L	93.5	0.100 - 172	126679628
Tributylphosphate	1132656	Blank	450	2000	ug/L	22.5	0.100 - 106	126679623
Tributylphosphate	1132656	LCS	586	2000	ug/L	29.3	0.100 - 106	126679624
Tributylphosphate	1132656	LCS Dup	621	2000	ug/L	31.0	0.100 - 106	126679625
Triphenylphosphate	1132656	Blank	749	2000	ug/L	37.4	0.100 - 172	126679623
Triphenylphosphate	1132656	LCS	869	2000	ug/L	43.4	0.100 - 172	126679624
Triphenylphosphate	1132656	LCS Dup	922	2000	ug/L	46.1	0.100 - 172	126679625
Tributylphosphate	2323513	Unknown	0.637	1.95	ug/L	32.7	0.100 - 106	126679626
Triphenylphosphate	2323513	Unknown	1.15	1.95	ug/L	59.0	0.100 - 172	126679626
Tributylphosphate	2323514	Unknown	0.714	1.97	ug/L	36.2	0.100 - 106	126679627
Triphenylphosphate	2323514	Unknown	1.21	1.97	ug/L	61.4	0.100 - 172	126679627

Analytical Set 1133525

SM 4500-P E-2011

AWRL/LOQ C

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus (as P), total	0.0459	0.060	mg/L	76.5	70.0 - 130	126659499

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Phosphorus (as P), total	1133525	ND	0.0122	0.030	mg/L	126659498

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus (as P), total	0.307	0.300	mg/L	102	90.0 - 110	126659500
Phosphorus (as P), total	0.301	0.300	mg/L	100	90.0 - 110	126659515

LCS Dup

Parameter	PrepSet	LCS	LCS D	Known	Limits%	LCS%	LCS D%	Units	RPD	Limit%
Phosphorus (as P), total	1133525	0.276	0.276	0.300	80.0 - 120	92.0	92.0	mg/L	0	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Phosphorus (as P), total	2325087	0.311	0.328	0.137	0.150	70.0 - 130	116	127	mg/L	9.32	20.0
Phosphorus (as P), total	2325088	0.335	0.358	0.195	0.150	70.0 - 130	93.3	109	mg/L	15.2	20.0

Analytical Set

1132687

EPA 350.1 2

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Ammonia Nitrogen	1132429	ND	0.509	1.00	mg/kg	126642769

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Ammonia Nitrogen	2.10	2.00	mg/kg	105	90.0 - 110	126642752
Ammonia Nitrogen	2.19	2.00	mg/kg	110	90.0 - 110	126642753
Ammonia Nitrogen	2.18	2.00	mg/kg	109	90.0 - 110	126642754
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126642755
Ammonia Nitrogen	2.13	2.00	mg/kg	106	90.0 - 110	126642756
Ammonia Nitrogen	2.18	2.00	mg/kg	109	90.0 - 110	126642757
Ammonia Nitrogen	2.16	2.00	mg/kg	108	90.0 - 110	126642758
Ammonia Nitrogen	2.17	2.00	mg/kg	108	90.0 - 110	126642759
Ammonia Nitrogen	2.12	2.00	mg/kg	106	90.0 - 110	126642760
Ammonia Nitrogen	2.08	2.00	mg/kg	104	90.0 - 110	126642761
Ammonia Nitrogen	2.16	2.00	mg/kg	108	90.0 - 110	126642762
Ammonia Nitrogen	2.10	2.00	mg/kg	105	90.0 - 110	126642763
Ammonia Nitrogen	2.09	2.00	mg/kg	104	90.0 - 110	126642764
Ammonia Nitrogen	2.12	2.00	mg/kg	106	90.0 - 110	126642765
Ammonia Nitrogen	2.14	2.00	mg/kg	107	90.0 - 110	126642766
Ammonia Nitrogen	2.06	2.00	mg/kg	103	90.0 - 110	126642767
Ammonia Nitrogen	2.09	2.00	mg/kg	104	90.0 - 110	126642768
Ammonia Nitrogen	2.07	2.00	mg/kg	104	90.0 - 110	126642772
Ammonia Nitrogen	2.10	2.00	mg/kg	105	90.0 - 110	126642774
Ammonia Nitrogen	2.00	2.00	mg/kg	100	90.0 - 110	126642775
Ammonia Nitrogen	1.97	2.00	mg/kg	98.5	90.0 - 110	126642776
Ammonia Nitrogen	1.96	2.00	mg/kg	98.0	90.0 - 110	126642781

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Ammonia Nitrogen	2323288	31.0	30.2	mg/kg	2.61	20.0

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Parameter	Reading	Known	Units	Recover%	Limits%	File
Ammonia Nitrogen	2.06	2.00	mg/kg	103	90.0 - 110	126642751

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Ammonia Nitrogen	1132429	101	101	100	90.0 - 110	101	101	mg/kg	0	20.0

Mat. Spike

Parameter	Sample	Spike	Unknown	Known	Units	Recovery %	Limits %	File
Ammonia Nitrogen	2323288	52.6	30.2	100	mg/kg	22.4	80.0 - 120	126642780 *

Analytical Set 1132859

EPA 351.2 2

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Total Kjeldahl Nitrogen	1132551	ND	0.378	1.00	mg/kg	126646381

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Total Kjeldahl Nitrogen	5.06	5.00	mg/kg	101	90.0 - 110	126646380
Total Kjeldahl Nitrogen	5.09	5.00	mg/kg	102	90.0 - 110	126646389
Total Kjeldahl Nitrogen	5.09	5.00	mg/kg	102	90.0 - 110	126646391
Total Kjeldahl Nitrogen	5.12	5.00	mg/kg	102	90.0 - 110	126646392
Total Kjeldahl Nitrogen	5.15	5.00	mg/kg	103	90.0 - 110	126646393

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Total Kjeldahl Nitrogen	2322823	4300	4370	mg/kg	1.61	20.0

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Total Kjeldahl Nitrogen	5.19	5.00	mg/kg	104	90.0 - 110	126646379

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Total Kjeldahl Nitrogen	1132551	98.2	97.6	100	90.0 - 110	98.2	97.6	mg/kg	0.613	20.0

Mat. Spike

Parameter	Sample	Spike	Unknown	Known	Units	Recovery %	Limits %	File
Total Kjeldahl Nitrogen	2322823	6760	4370	9850	mg/kg	24.3	80.0 - 120	126646386 *

Analytical Set 1132740

SM2540 G-1997 /MOD

ControlBlk

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Total Solids for Dry Wt Conversi	1132740	0.0004			grams	126643970

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Total Solids for Dry Wt Conversi	2323515	10.8	11.0	%	1.83	20.0

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Analytical Set **1133015**

EPA 9056

Blank											
Parameter	PrepSet	Reading	MDL	MQL	Units	File					
Nitrate-Nitrogen	1132863	ND	0.0185	0.0226	mg/kg	126649268					
CCV											
Parameter		Reading	Known	Units	Recover%	Limits%	File				
Nitrate-Nitrogen		2.31	2.26	mg/kg	102	90.0 - 110	126649267				
Nitrate-Nitrogen		2.34	2.26	mg/kg	104	90.0 - 110	126649283				
Nitrate-Nitrogen		2.35	2.26	mg/kg	104	90.0 - 110	126649288				
LCS Dup											
Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%	
Nitrate-Nitrogen	1132863	1.17	1.17	1.13	75.0 - 120	104	104	mg/kg	0	20.0	
MSD											
Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Nitrate-Nitrogen	2323288	56.0	50.0	55.4	2.25	80.0 - 120	26.5 *	-239 *	mg/kg	11.3	20.0

Analytical Set **1132664**

EPA 7471B 2

Blank											
Parameter	PrepSet	Reading	MDL	MQL	Units	File					
Mercury	1132557	0.0000723	0.0000415	0.0001	mg/kg	126641796					
CCV											
Parameter		Reading	Known	Units	Recover%	Limits%	File				
Mercury		0.00503	0.005	mg/kg	101	90.0 - 110	126641794				
Mercury		0.00505	0.005	mg/kg	101	90.0 - 110	126641795				
Mercury		0.00461	0.005	mg/kg	92.2	90.0 - 110	126641806				
ICL											
Parameter		Reading	Known	Units	Recover%	Limits%	File				
Mercury		0.0207	0.02	mg/kg	104	90.0 - 110	126641793				
ICV											
Parameter		Reading	Known	Units	Recover%	Limits%	File				
Mercury		0.00494	0.005	mg/kg	98.8	90.0 - 110	126641792				
LCS Dup											
Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%	
Mercury	1132557	0.00947	0.00874	0.010	78.6 - 104	94.7	87.4	mg/kg	8.02	20.0	
MSD											
Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Mercury	2322817	1.03	1.06	0.122	0.992	74.3 - 109	93.6	96.7	mg/kg	3.25	25.0

Analytical Set **1133204**

EPA 6020A

Blank										
Parameter	PrepSet	Reading	MDL	MQL	Units	File				

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<u>Parameter</u>	<u>PrepSet</u>	<u>Reading</u>	<u>MDL</u>	<u>MQL</u>	<u>Units</u>	<u>File</u>
Arsenic, Total	1132984	ND	0.000917	0.005	mg/kg	126652365
Cadmium, Total	1132984	ND	0.00011	0.001	mg/kg	126652365
Chromium, Total	1132984	ND	0.000409	0.001	mg/kg	126652365
Copper, Total	1132984	ND	0.000242	0.001	mg/kg	126652365
Lead, Total	1132984	ND	0.000262	0.001	mg/kg	126652365
Molybdenum, Total	1132984	0.00133	0.000865	0.003	mg/kg	126652365
Nickel, Total	1132984	0.000311	0.000287	0.001	mg/kg	126652365
Selenium, Total	1132984	ND	0.000353	0.001	mg/kg	126652365
Zinc, Total	1132984	ND	0.00479	0.010	mg/kg	126652365

CCV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Arsenic, Total	0.0481	0.05	mg/kg	96.2	90.0 - 110	126652361
Arsenic, Total	0.0478	0.05	mg/kg	95.6	90.0 - 110	126652371
Arsenic, Total	0.0481	0.05	mg/kg	96.2	90.0 - 110	126652377
Cadmium, Total	0.0483	0.05	mg/kg	96.6	90.0 - 110	126652361
Cadmium, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	126652371
Cadmium, Total	0.049	0.05	mg/kg	98.0	90.0 - 110	126652377
Chromium, Total	0.0484	0.05	mg/kg	96.8	90.0 - 110	126652361
Chromium, Total	0.0494	0.05	mg/kg	98.8	90.0 - 110	126652371
Chromium, Total	0.0499	0.05	mg/kg	99.8	90.0 - 110	126652377
Copper, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	126652361
Copper, Total	0.0505	0.05	mg/kg	101	90.0 - 110	126652371
Copper, Total	0.0507	0.05	mg/kg	101	90.0 - 110	126652377
Lead, Total	0.0524	0.05	mg/kg	105	90.0 - 110	126652361
Lead, Total	0.0527	0.05	mg/kg	105	90.0 - 110	126652371
Lead, Total	0.0527	0.05	mg/kg	105	90.0 - 110	126652377
Molybdenum, Total	0.0462	0.05	mg/kg	92.4	90.0 - 110	126652361
Molybdenum, Total	0.051	0.05	mg/kg	102	90.0 - 110	126652371
Molybdenum, Total	0.0509	0.05	mg/kg	102	90.0 - 110	126652377
Nickel, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	126652361
Nickel, Total	0.0503	0.05	mg/kg	101	90.0 - 110	126652371
Nickel, Total	0.0507	0.05	mg/kg	101	90.0 - 110	126652377
Selenium, Total	0.0481	0.05	mg/kg	96.2	90.0 - 110	126652361
Selenium, Total	0.048	0.05	mg/kg	96.0	90.0 - 110	126652371
Selenium, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	126652377
Zinc, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	126652361
Zinc, Total	0.0506	0.05	mg/kg	101	90.0 - 110	126652371
Zinc, Total	0.0511	0.05	mg/kg	102	90.0 - 110	126652377

ICV

<u>Parameter</u>	<u>Reading</u>	<u>Known</u>	<u>Units</u>	<u>Recover%</u>	<u>Limits%</u>	<u>File</u>
Arsenic, Total	0.0522	0.05	mg/kg	104	90.0 - 110	126652350
Cadmium, Total	0.0524	0.05	mg/kg	105	90.0 - 110	126652350
Chromium, Total	0.0514	0.05	mg/kg	103	90.0 - 110	126652350

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ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Copper, Total	0.053	0.05	mg/kg	106	90.0 - 110	126652350
Lead, Total	0.0528	0.05	mg/kg	106	90.0 - 110	126652350
Molybdenum, Total	0.051	0.05	mg/kg	102	90.0 - 110	126652350
Nickel, Total	0.0529	0.05	mg/kg	106	90.0 - 110	126652350
Selenium, Total	0.0508	0.05	mg/kg	102	90.0 - 110	126652350
Zinc, Total	0.0525	0.05	mg/kg	105	90.0 - 110	126652350

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Arsenic, Total	1132984	2.41	2.37	2.50	80.0 - 120	96.4	94.8	mg/kg	1.67	20.0
Cadmium, Total	1132984	1.22	1.21	1.25	80.0 - 120	97.6	96.8	mg/kg	0.823	20.0
Chromium, Total	1132984	2.50	2.47	2.50	80.0 - 120	100	98.8	mg/kg	1.21	20.0
Copper, Total	1132984	2.53	2.53	2.50	80.0 - 120	101	101	mg/kg	0	20.0
Lead, Total	1132984	2.57	2.55	2.50	80.0 - 120	103	102	mg/kg	0.781	20.0
Molybdenum, Total	1132984	2.43	2.43	2.50	80.0 - 120	97.2	97.2	mg/kg	0	20.0
Nickel, Total	1132984	2.56	2.53	2.50	80.0 - 120	102	101	mg/kg	1.18	20.0
Selenium, Total	1132984	2.43	2.41	2.50	80.0 - 120	97.2	96.4	mg/kg	0.826	20.0
Zinc, Total	1132984	2.47	2.44	2.50	80.0 - 120	98.8	97.6	mg/kg	1.22	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Arsenic, Total	2323650	85.0	78.6	1.39	97.5	67.5 - 123	81.2	75.0	mg/kg	7.96	20.0
Cadmium, Total	2323650	49.6	46.4	0.0056	48.7	86.3 - 114	95.9	89.7	mg/kg	6.67	20.0
Chromium, Total	2323650	101	97.8	3.68	97.5	80.1 - 122	94.5	91.4	mg/kg	3.34	20.0
Copper, Total	2323650	99.4	94.1	1.59	97.5	40.4 - 145	95.0	89.8	mg/kg	5.57	20.0
Lead, Total	2323650	108	103	7.40	97.5	78.8 - 123	97.7	92.8	mg/kg	5.10	20.0
Molybdenum, Total	2323650	80.8	70.4	0.165	97.5	62.9 - 137	78.3	68.2	mg/kg	13.8	20.0
Nickel, Total	2323650	101	101	3.62	97.5	76.5 - 121	94.5	94.5	mg/kg	0	20.0
Selenium, Total	2323650	85.1	76.1	0.0803	97.5	63.9 - 122	82.5	73.8	mg/kg	11.2	20.0
Zinc, Total	2323650	102	98.3	6.66	97.5	28.6 - 157	92.6	89.0	mg/kg	3.96	20.0

Analytical Set 1134109

EPA 8082

Blank

Parameter	PrepSet	Reading	MDL	MDL	Units	File
PCB-1016	1133604	ND	43.0	250	ug/kg	126673633
PCB-1221	1133604	ND	43.0	250	ug/kg	126673633
PCB-1232	1133604	ND	43.0	250	ug/kg	126673633
PCB-1242	1133604	ND	43.0	250	ug/kg	126673633
PCB-1248	1133604	ND	43.0	250	ug/kg	126673633
PCB-1254	1133604	ND	43.0	250	ug/kg	126673633
PCB-1260	1133604	ND	43.0	250	ug/kg	126673633

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
PCB-1016	835	1000	ug/kg	83.5	80.0 - 120	126673632
PCB-1016	1020	1000	ug/kg	102	80.0 - 120	126673639

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Parameter	Reading	Known	Units	Recover%	Limits%	File
PCB-1260	884	1000	ug/kg	88.4	80.0 - 120	126673632
PCB-1260	1020	1000	ug/kg	102	80.0 - 120	126673639

LCS Dup

Parameter	PrepSet	LCS	LCS D	Known	Limits%	LCS%	LCS D%	Units	RPD	Limit%
PCB-1016	1133604	4370	4720	5000	28.4 - 187	87.4	94.4	ug/kg	7.70	30.0
PCB-1260	1133604	4730	4960	5000	22.3 - 183	94.6	99.2	ug/kg	4.75	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
PCB-1016	2323515	4780	4970	ND	10000	0.100 - 427	47.8	49.7	ug/kg	3.90	30.0
PCB-1260	2323515	5220	5260	ND	10000	0.100 - 470	52.2	52.6	ug/kg	0.763	30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Decachlorobiphenyl	1133604	Blank	65.8	100	ug/kg	65.8	10.0 - 200	126673633
Tetrachloro-m-Xylene (Surr)	1133604	Blank	87.7	100	ug/kg	87.7	10.0 - 160	126673633
Decachlorobiphenyl	2323515	Unknown	324	500	ug/kg	64.8	10.0 - 200	126673636
Tetrachloro-m-Xylene (Surr)	2323515	Unknown	395	500	ug/kg	79.0	10.0 - 160	126673636

Analytical Set

1132715

EPA 9045D

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Soil pH Measured in Water	2322307	5.7	5.7	SU	0	20.0

Standard

Parameter	Sample	Reading	Known	Units	Recover%	Limits%	File
Soil pH Measured in Water	1132715	6.05	6.00	SU	101	90.0 - 110	126643651
Soil pH Measured in Water	1132715	8.01	8.00	SU	100	90.0 - 110	126643652
Soil pH Measured in Water	1132715	6.07	6.00	SU	101	90.0 - 110	126643664
Soil pH Measured in Water	1132715	8.04	8.00	SU	100	90.0 - 110	126643665

* Out RPD is Relative Percent Difference: $\frac{\text{abs}(r1-r2)}{\text{mean}(r1,r2)} * 100\%$

Recover% is Recovery Percent: $\frac{\text{result}}{\text{known}} * 100\%$

Blank - Method Blank (reagent water or other blank matrices that contains all reagents except standard(s) and is processed simultaneously with and under the same conditions as samples; carried through preparation and analytical procedures exactly like a sample; monitors); CCV - Continuing Calibration Verification (same standard used to prepare the curve; typically a mid-range concentration; verifies the continued validity of the calibration curve); MSD - Matrix Spike Duplicate (replicate of the matrix spike; same solution and amount of target analyte added to the MS is added to a third aliquot of sample; quantifies matrix bias and precision.); LCS Dup - Laboratory Control Sample Duplicate (replicate LCS; analyzed when there is insufficient sample for duplicate or MSD; quantifies accuracy and precision.); ICV - Initial Calibration Verification; MRL Check - Minimum Reporting Limit Check Std; BFB - Bromofluorobenzene, GC/MS Tuning Compound (mass intensity used as tuning acceptance criteria.); Surrogate - Surrogate (mimics the analyte of interest but is unlikely to be found in environmental samples; added to analytical samples for QC purposes. **ANSI/ASQC E4 1994 Ref #4 TRADE QA Resources Guide.); IS Areas - Internal Standard Area (The area of the internal standard relative to a check standard. Internal Standard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); IS RetTime - Internal Standard Retention Time (the time the internal standard comes off the column. Internal Standard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); CCB - Continuing Calibration Blank; AWRL/LOQ C - Ambient Water Reporting Limit/LOQ Check Std; DFTPP - GC/MS Tuning Compound



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The Science of Sure

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Page 1 of 2

CHAIN OF CUSTODY

City of TylerWest Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
108

Lab Number 2323515

PG Number _____

Phone 903/592-5391

Lagoon/Digester Sludge

*** 5 Day Rush ***

Hand Delivered by Client to Region or LAB

Matrix: Solid & Chemical Materials

Sample Collection Start

Date: 8/7/24 Time: 1400

Sampler Printed Name: Ryan Peden

Sampler Affiliation: TYL-1

Sampler Signature: [Signature]

Samples Radioactive?

Samples Contains Dioxin?

Samples Biological Hazard?

*** Total Per Ryan ***
- Not TCLP -

2 Glass Qt w/Teflon lined lid

NELAC	*As*	TCLP Arsenic	EPA 6010C CAS:7440-38-2 (14.0 days)
NELAC	*Cd*	TCLP Cadmium	EPA 6010C CAS:7440-43-9 (14.0 days)
NELAC	*Cr*	TCLP Chromium	EPA 6010C CAS:7440-47-3 (14.0 days)
	Cu	TCLP Copper	EPA 6010C CAS:7440-50-8 (14.0 days)
NELAC	*Hg*	TCLP Mercury	EPA 7470 A CAS:7439-97-6 (14.0 days)
	Mo	TCLP Molybdenum	EPA 6010C CAS:7439-98-7 (14.0 days)
	Ni	TCLP Nickel	EPA 6010C CAS:7440-02-0 (14.0 days)
NELAC	*Pb*	TCLP Lead	EPA 6010C CAS:7439-92-1 (14.0 days)
NELAC	*Se*	TCLP Selenium	EPA 6010C CAS:7782-49-2 (14.0 days)
NELAC	*TCL	TCLP Extraction Non-Volatile	EPA 1311 (14.0 days)
	Zn	TCLP Zinc	EPA 6010C CAS:7440-66-6 (14.0 days)

3 Glass 4 oz w/Teflon lined lid

NELAC	INBS	Nitrate-Nitrogen	EPA 9056 CAS:14797-55-8 (28.0 days)
NELAC	IPCB	Polychlorinated Biphenyls	EPA 8082 (7.00 days)
NELAC	*KI	Potassium	EPA 6010C CAS:7440-09-7 (180 days)



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CHAIN OF CUSTODY

City of Tyler West Plant
Ryan Peden
522 W. Locust
P O 2039
Tyler, TX 75710
NELAC

TYL1-A
108

NELAC	*PI	Phosphorus	EPA 6010C CAS:7723-14-0 (180 days)
NELAC	3018	Solid Metals Digestion	EPA 200.2 2.8 (180 days)
NELAC	NH4N	Ammonia Nitrogen	EPA 350.1 2 (28.0 days)
NELAC	pHLS	Soil pH Measured in Water	EPA 9045D (180 days)
NELAC	TKN	Total Kjeldahl Nitrogen	EPA 351.2 2 CAS:7727-37-9 (28.0 days)
NELAC	TS%	Total Solids for Dry Wt Conversi	SM2540 G-1997 /MOD

Z -- No bottle required.

NELAC

ARDW	As Received to Dry Weight Basis	Calculation
TNt	Total Nitrogen (as N)	Calculation (28.0 days)

Ambient Conditions/Comments

Date	Time	Relinquished	Received
8/7/24	1440	Printed Name: Ryan Peden Signature: [Signature] Affiliation: TPL-Z	Printed Name: [Signature] Signature: [Signature] Affiliation: SPL
8/7/24	1600	Printed Name: [Signature] Signature: [Signature] Affiliation: SPL	Printed Name: Rayshawn Thompson Signature: [Signature] Affiliation: SPL, Inc.
		Printed Name: [Signature] Signature: [Signature] Affiliation: [Signature]	Printed Name: [Signature] Signature: [Signature] Affiliation: [Signature]
		Printed Name: [Signature] Signature: [Signature] Affiliation: [Signature]	Printed Name: [Signature] Signature: [Signature] Affiliation: [Signature]

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No
If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - A2LA, N - NELAC, or Z - not listed under scope of accreditation. Unless of these ordered services pursuant to our Standard Terms & Conditions Agreement. SPL personnel collect samples as specified by S.

Comments

8/7 1726 RT
Date Time Tech
Temp: 3.8 / 3.1 C
Therm#: 6444 Corr Fact: -0.7 C



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CHAIN OF CUSTODY

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City of Tyler West Plant
Ryan Peden
521 W. Locust
P O 2039
Tyler, TX 75710

**TYL1-A
A2**

Lab Number 2223457
PO Number _____
Phone 903/592-5391

J. P. Peden
Grab (1st/3rd)

Hand Delivered by Client to Region or LAB

Matrix: Non-Potable Water

Sample Collection Start

Date: Aug 7, 2024 Time: 12:00

Sampler Printed Name: Paul D. Terrell

Sampler Affiliation: TYL-2

Sampler Signature: *[Signature]*

Samples Radioactive?

Samples Contains Dioxin?

Samples Biological Hazard?

On Site Testing

C12 Field C12 Check for CNs

Field C12 Check for CNs

Collected By PT Date 8/7/24 Time 09:00 Analyzed By _____ Date _____ Time _____

Results _____ Units _____ Temp. _____ C Duplicate _____ Units _____ Temp. _____ C
R1 _____ R2 _____ QCR1 _____ QCR2 _____

S202 Field Sulfide Check for CNs

Field Sulfide Check for CNs

Collected By PT Date 8/7/24 Time 09:00 Analyzed By _____ Date _____ Time _____

Results _____ Units _____ Temp. _____ C Duplicate _____ Units _____ Temp. _____ C
R1 _____ R2 _____ QCR1 _____ QCR2 _____



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CHAIN OF CUSTODY

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City of Tyler/West Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

TYL1-A
A2
Inf.

1	H2SO4 to pH <2 Amber Glass 250 mL w/Teflon lined lid	
NELAC	Phen Phenols, Total Recoverable	EPA 420.4 1 (28.0 days)
0	Z - No bottle required	
	CKLM Check Limits	
	FRLD Force RLD Limits	
2	NaOH to pH >12 Polyethylene 250 mL/amber	
NELAC	CN _T Cyanide, total	SM 4500-CN ⁻ E-2016 (14.0 days)
NELAC	CN _A Cyanide - Available/Amenable	SM 4500-CN ⁻ G-2016 (14.0 days)
NELAC	CN _{Cl} Cyanide After Chlorination	SM 4500-CN ⁻ G-2016 (14.0 days)
1	Polyethylene Quart	
NELAC	Short Hold Cr+6 Hexavalent Chromium	SM 3500-Cr B-2011 CAS:18540-29-9 (1.00 days)

Ambient Conditions/Comments

Date	Time	Relinquished	Received
8/7/24	1440	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>
8/7/24	1600	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: Rayshawn Thompson SPL, Inc.
		<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>
		<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>	<i>[Signature]</i> Printed Name: <i>[Name]</i> Signature: <i>[Signature]</i> Affiliation: <i>[Affiliation]</i>

Sample Received on Ice? Yes No
 Cooler/Sample Secure? Yes No
 If Shipped: Tracking Number & Temp - See Attached
 Therm#: 6444 Corr Fact: -0.7 C
 Date: 8/7/24 Time: 1726 RT Tech: C
 Temp: 3.8/5.1

The accredited column designates accreditation by A - A.L.A. N - NELAC, or Z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #00032.

Comments



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CHAIN OF CUSTODY

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City of TylerWest Plant
Ryan Peden
511 W. Locust
PO 2039
Tyler, TX 75710

TYLI-A
A3

Lab Number 2323484
PO Number _____
Phone 903/592-5391

T.P.F.

VOA Comp (1st/3rd)

Hand Delivered by Client to Region or LAB

Sample ID TYL-7

Sample1: Date <u>8/6/24</u>	Time <u>1000</u>	Tech <u>C.F.</u>
Sample2: Date <u>8/6/24</u>	Time <u>1600</u>	Tech <u>C.M.</u>
Sample3: Date <u>8/6/24</u>	Time <u>2200</u>	Tech <u>C.M.</u>
Sample4: Date <u>8/7/24</u>	Time <u>0400</u>	Tech <u>V.W.</u>

Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid (8)

Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace) (12)
Matrix: Non-Potable Water

Sample Collection Start

Date Aug 6 2024 Time 1000
Sampler Printed Name: Richard D. Tenille
Sampler Affiliation: TYL-7
Sampler Signature: [Signature]

Samples Radioactive? Samples Contain Dioxin? Samples Biological Hazards?

2 Glass Vial 40 mL (Zero Headspace) w/Teflon lined lid

NELAC Short Hold SAAB Acrolein/Acrylonitrile Exp. EPA 624.1 (3.00 days)

0 Z - No bottle required

CKLM Check Limits
FRLD Force RLD Limits
mixv Composite VOA vial pre-injection

NELAC

3 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)

Short Hold TYLV T10 VOA 40 CFR Pt 122 Table II EPA 624.1 (3.00 days)

Ambient Conditions/Comments



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CHAIN OF CUSTODY

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City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYLI-A
A3

INT

Date	Time	Relinquished	Received
8/1/24	1440	Printed Name: <i>Samuel Trank</i> Signature: <i>[Signature]</i> Affiliation: <i>HL-2</i>	Printed Name: <i>Garry Dagnel</i> Signature: <i>[Signature]</i> Affiliation: <i>SPL</i>
8/1/24	1600	Printed Name: <i>Garry Dagnel</i> Signature: <i>[Signature]</i> Affiliation: <i>SPL</i>	Printed Name: <i>Hayshawn Thompson</i> Signature: <i>[Signature]</i> Affiliation: <i>SPL, Affiliation</i>
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No
If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - A2LA, N - NELAP, or - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #000323.

Comments

8/7 1726 RT
Date Time Tech
Temp: 3.8 / 3.1 C
Therm#: 6444 Corr Fact: -0.7 C



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CHAIN OF CUSTODY

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City of Tyler West Plant
Ryan Peden
522 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
A4

Lab Number 2323493
PO Number _____
Phone 903/592-5391

Take
Composite (1st/3rd)

Hand Delivered by Client to Region or LAB

Matrix: Non-Potable Water

Sample Collection Start

Date: Aug 6 2024 Time: 1:00 PM
Sampler Printed Name: Richard D. Tork
Sampler Affiliation: TYL-2
Sampler Signature: [Signature]

Sample Collection Stop

Date: Aug 7 2024 Time: 08:00 AM
Sampler Printed Name: Richard D. Tork
Sampler Affiliation: TYL-2
Sampler Signature: [Signature]

Samples Radioactive? Samples Contains Dioxin? Samples Biological Hazard?

7 Amber Glass Qt w/Teflon lined lid

NEIAC	• IHER	Herbicides by GC	EPA 615 (7.00 days)
NEIAC	• IPCB	Polychlorinated Biphenyls	EPA 608.3 (7.00 days)
	• HXPE	Hexachlorophene Expansion	EPA 604.1 CAS:70-30-4 (7.00 days)
NEIAC	• TYLC	Carbaryl/Diuron	EPA 632 (7.00 days)
	• TYLO	Organophosphorous Pesticides	EPA 614 (7.00 days)
	• TYLP	Pesticides by GC	EPA 608.3 (7.00 days)
	• TYLS	TTO ABN 40 CFR Pt 122 Table II	EPA 625.1 (7.00 days)

2 H2SO4 to pH <2 GIQt w/Tef-lined lid

NYPB Nonyl Phenol Expansion ASTM D7065-11 (14.0 days)

0 Z - No bottle required

NEIAC Short Hold

CKLM	Check Limits	
Cr+3	Trivalent Chromium	Calculation CAS: 16065-83-1 (1.00 days)
FRLD	Force RLD Limits	
HgKt	LL Mercury Test Prep	



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CHAIN OF CUSTODY

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City of Tyler West Plant
 Ryan Peden
 511 W. Locust
 P O 2039
 Tyler, TX 75710

TYL1-A
A4

T.P.F.

1 HNO3 to pH <2 Polyethylene 500 mL for Metals

NELAC	*AgM	Silver, Total	EPA 200.8 5.4 CAS:7440-22-4 (180 days)
NELAC	*AlM	Aluminum, Total	EPA 200.8 5.4 CAS:7429-90-5 (180 days)
NELAC	*AsM	Arsenic, Total	EPA 200.8 5.4 CAS:7440-38-2 (180 days)
NELAC	*BaM	Barium, Total	EPA 200.8 5.4 CAS:7440-39-3 (180 days)
NELAC	*BeM	Beryllium, Total	EPA 200.8 5.4 CAS:7440-41-7 (180 days)
NELAC	*CdM	Cadmium, Total	EPA 200.8 5.4 CAS:7440-43-9 (180 days)
NELAC	*CrM	Chromium, Total	EPA 200.8 5.4 CAS:7440-47-3 (180 days)
NELAC	*CuM	Copper, Total	EPA 200.8 5.4 CAS:7440-50-8 (180 days)
NELAC	*NiM	Nickel, Total	EPA 200.8 5.4 CAS:7440-02-0 (180 days)
NELAC	*PbM	Lead, Total	EPA 200.8 5.4 CAS:7439-92-1 (180 days)
NELAC	*SbM	Antimony, Total	EPA 200.8 5.4 CAS:7440-36-0 (180 days)
NELAC	*SeM	Selenium, Total	EPA 200.8 5.4 CAS:7782-49-2 (180 days)
NELAC	*TlM	Thallium, Total	EPA 200.8 5.4 CAS:7440-28-0 (180 days)
NELAC	*ZnM	Zinc, Total	EPA 200.8 5.4 CAS:7440-66-6 (180 days)
	301L	Liquid Metals Digestion	EPA 200.2 2.8 (180 days)

1 H2SO4 to pH <2 250 ml Polyethylene

NELAC	TPWB	Phosphorus (as P), total	SM 4500-P E-2011 CAS:7723-14-0 (28.0 days)
-------	------	--------------------------	--

1 Glass /clean metals w/HCl

NELAC	*HgI	Mercury, Total (low level)	EPA 245.7 2 CAS:7439-97-6 (90.0 days)
NELAC	345I	Low Level Mercury Liquid Metals	EPA 245.7 2 (90.0 days)

1 Polyethylene Quart

NELAC	FFL	Fluoride	EPA 300.0 2.1 (28.0 days)
NELAC	IN3L	Nitrate-Nitrogen Total	EPA 300.0 2.1 CAS:14797-55-8 (2.00 days)

Ambient Conditions/Comments



1113566 CoC Print Group 001 of 002

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CHAIN OF CUSTODY

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City of TylerWest Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
A4

J.P.F.

Date	Time	Relinquished		Received	
8/16/24	1440	Printed Name: <i>Raymond Deque</i>	Affiliation: <i>SPC</i>	Printed Name: <i>Raymond Deque</i>	Affiliation: <i>SPC</i>
8/16/24	1600	Printed Name: <i>Raymond Deque</i>	Affiliation: <i>SPC</i>	Printed Name: <i>Raymond Deque</i>	Affiliation: <i>SPC</i>
		Printed Name: <i>Raymond Deque</i>	Affiliation: <i>SPC</i>	Printed Name: <i>Rayshawn Thompson</i>	Affiliation: <i>SPL, Inc.</i>
		Signature: <i>[Signature]</i>	Affiliation: <i>[Affiliation]</i>	Signature: <i>[Signature]</i>	Affiliation: <i>[Affiliation]</i>
		Printed Name: <i>[Blank]</i>	Affiliation: <i>[Blank]</i>	Printed Name: <i>[Blank]</i>	Affiliation: <i>[Blank]</i>
		Signature: <i>[Blank]</i>	Affiliation: <i>[Blank]</i>	Signature: <i>[Blank]</i>	Affiliation: <i>[Blank]</i>

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No
If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - A2LA, N - NELAP, or S - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #900333.

Comments

8/17 1726 RT
Date Time Tech
Temp: 3.8 / 3.1 C
Therm#: 6444 Corr Fact: -0.7 C



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CHAIN OF CUSTODY

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City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

**TYL1-A
A5**

Lab Number 2323503
PO Number _____
Phone 903/592-5391

Tuf
Table V/Comp (1st/3rd)

Hand Delivered by Client to Region or LAB

Matrix: Non-Potable Water

Sample Collection Start

Date: Aug 6 2024 Time: 10:00

Sampler Printed Name: Richard Gandy

Sampler Affiliation: TYL-2

Sampler Signature: [Signature]

Sample Collection Stop

Date: Aug 7 2024 Time: 08:00

Sampler Printed Name: Richard Gandy

Sampler Affiliation: TYL-2

Sampler Signature: [Signature]

Samples Radioactive?

Samples Contains Dioxin?

Samples Biological Hazard?

Amber Glass Qt w/Teflon lined lid

SRac Resorcinol Expansion

EPA 625.1 (7.00 days)

Amber Glass Qt w/Teflon lined lid

NELAC Short Hold

FORB Formaldehyde Expansion

EPA 1667 (3.00 days)

Z - No bottle required

CKLM Check Limits

FRLD Force RLD Limits

HNO3 to pH < 2 Polyethylene 500 mL for Metals

NELAC

MobM Molybdenum, Total

EPA 200.8 5.4 CAS:7439-98-7 (180 days)

301L Liquid Metals Digestion

EPA 200.2 2.8 (180 days)

Ambient Conditions/Comments



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CHAIN OF CUSTODY

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Page 2 of 2

City of Tyler West Plant
Ryan Peden
515 W. Locust
P O 2099
Tyler, TX 75710

TYL1-A
A5

INF

Date	Time	Relinquished		Received	
8/7/24	1440	Printed Name: <i>Richard D. Fend</i>	Affiliation: <i>TYL-1</i>	Printed Name: <i>Rayshawn Thompson</i>	Affiliation: <i>SPL</i>
		Signature: <i>[Signature]</i>		Signature: <i>[Signature]</i>	
8/7/24	1600	Printed Name: <i>Rayshawn Thompson</i>	Affiliation: <i>SPL</i>	Printed Name: <i>Rayshawn Thompson</i>	Affiliation: <i>SPL, Inc.</i>
		Signature: <i>[Signature]</i>		Signature: <i>[Signature]</i>	
		Printed Name:	Affiliation:	Printed Name:	Affiliation:
		Signature:		Signature:	
		Printed Name:	Affiliation:	Printed Name:	Affiliation:
		Signature:		Signature:	

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No
If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - AZLA, N - NPLAC, or Z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). ANA-Lab personnel collect samples as specified by ANA-Lab SOP #000323.

Comments

8/7 1726 RT
Date Time Tech
Temp: 3.8 / 3.1 C
Therm#: 6444 Corr Fact: -0.7 C



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CHAIN OF CUSTODY

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City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
A6

Lab Number 2323507
PO Number _____
Phone 903/592-5391

Env.

Table V/Grab(1st/3rd)

Hand Delivered by Client to Region or LAB

Matrix: Non-Potable Water

Sample Collection Start

Date: Aug 7, 2024 Time: 0900
Sampler Printed Name: Paul O. Tamm
Sampler Affiliation: PL-2
Sampler Signature: [Signature]

8/7 1726 RT
Date Time Tech
Temp: 3.8 / 3.1 C
Therm#: 6444 Corr Fact: -0.7 C

Sample Radioactive? Samples Contains Dioxin? Samples Biological Hazard?

0 Z -- No bottle required

CKLM Check Limits

FRLD Force RLD Limits

3 Na2S2O3 (0.008%) Glass 40 mL vial w/Teflon lined lid (zero headspace)

NELAC

XyE Xylene Expansion (GC/MS)

EPA 624.1 (14.0 days)

Ambient Conditions/Comments

Date	Time	Relinquished	Received
8/7/24	1440	Printed Name: <u>Paul O. Tamm</u> Signature: <u>[Signature]</u> Affiliation: <u>PL-2</u>	Printed Name: <u>Barry Dandy</u> Signature: <u>[Signature]</u> Affiliation: <u>SPL</u>
8/7/24	1600	Printed Name: <u>Barry Dandy</u> Signature: <u>[Signature]</u> Affiliation: <u>SPL</u>	Printed Name: <u>Rayshawn Thompson</u> Signature: <u>[Signature]</u> Affiliation: <u>SPL Inc.</u>
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____



1
2
3
4
5

1113566 CoC Print Group 002 of 002

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914



SPL
The Science of Sure

Printed 02/05/2024

Page 2 of 2

CHAIN OF CUSTODY

City of TylerWest Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
A6

Twp

Sample Received on Ice? Yes No

Cooler/Sample Secure? Yes No

If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - AZLA, N - NELAP, or z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #000123.

Comments:



2600 Dudley Rd., Kilgore, Texas 75662
Office: 903-984-0551 * Fax: 903-984-5914



SPL
The Science of Sure

CHAIN OF CUSTODY

Printed 06/20/2024 Page 1 of 2

City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
102

Lab Number 2323514
PO Number _____
Phone 903/592-5391

Effluent Oxadiazinon

Hand Delivered by Client to Region or LAB

Matrix: Non-Potable Water

Sample Collection Start Date: <u>Aug 6 2024</u> Time: <u>10:00</u> Sampler Printed Name: <u>Ronald D. Tannell</u> Sampler Affiliation: <u>TYL-1</u> Sampler Signature: <u>[Signature]</u>	Sample Collection Stop Date: <u>Aug. 7 2024</u> Time: <u>09:00</u> Sampler Printed Name: <u>Ronald D Tannell</u> Sampler Affiliation: <u>TYL-1</u> Sampler Signature: <u>[Signature]</u>
--	---

Samples Radioactive? Samples Contains Dioxin? Samples Biological Hazard?

1 Amber Glass Qt w/Teflon lined lid

NPL-1C SMOE Diazinon/Oxadiazinon Exp. EPA 614 (7.00 days)

Ambient Conditions/Comments

Date	Time	Relinquished	Received
8/7/24	1940	Printed Name: <u>Ronald D. Tannell</u> Signature: <u>[Signature]</u> Affiliation: <u>TYL-1</u>	Printed Name: <u>Garry Daniel</u> Signature: <u>[Signature]</u> Affiliation: <u>SPL</u>
8/7/24		Printed Name: <u>Garry Daniel</u> Signature: <u>[Signature]</u> Affiliation: <u>SPL</u>	Printed Name: <u>[Signature]</u> Signature: <u>[Signature]</u> Affiliation: <u>Rayshawn Thompson SPL, Inc.</u>
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____
		Printed Name: _____ Signature: _____ Affiliation: _____	Printed Name: _____ Signature: _____ Affiliation: _____

Therm#: 6444 Corr Fact: -0.7 C



1
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4
5

1113566 CoC Print Group 002 of 002

Form please refer, created 12/13/2019 v1.0

234613

Corporate: 2600 Dudley Road Kilgore TX 75662



The accredited column designates accreditation by A - A2LA, N - NELAP, or Z - not listed under scope of accreditation. (Mass otherwise specified. A NA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ams-lab.com>).
AMS-LAB personnel collect samples as specified by AMS-LAB SOP #00023.

Comments

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No

If Shipped: Tracking Number & Temp - See Attached

City of TylerWest Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
102

CHAIN OF CUSTODY



1
2
3
4
5

1113566 CoC Print Group 002 of 002

2600 Dudley Road, Kilgore, Texas 75662
Office: 903-984-0551 * Fax: 903-984-5914



SPL
The Science of Sure

Printed 06/20/2024

Page 2 of 2

CHAIN OF CUSTODY

City of Tyler West Plant
Ryan Peden
511 W. Locust
P O 2039
Tyler, TX 75710

TYL1-A
103

Sample Received on Ice? Yes No
Cooler/Sample Secure? Yes No

If Shipped: Tracking Number & Temp - See Attached

The accredited column designates accreditation by A - A2L1, N - NELAP, or Z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #00323.

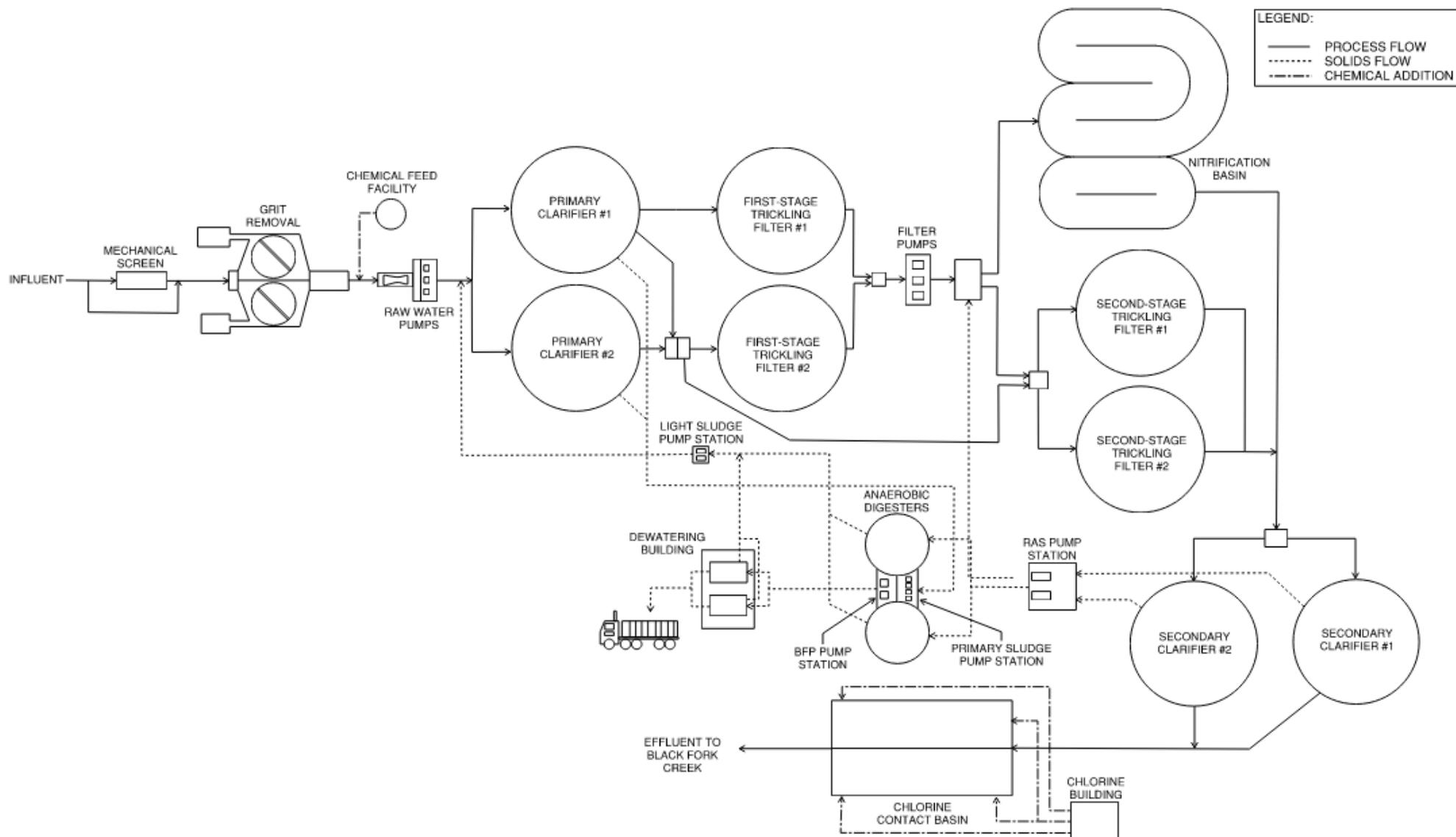
Comments



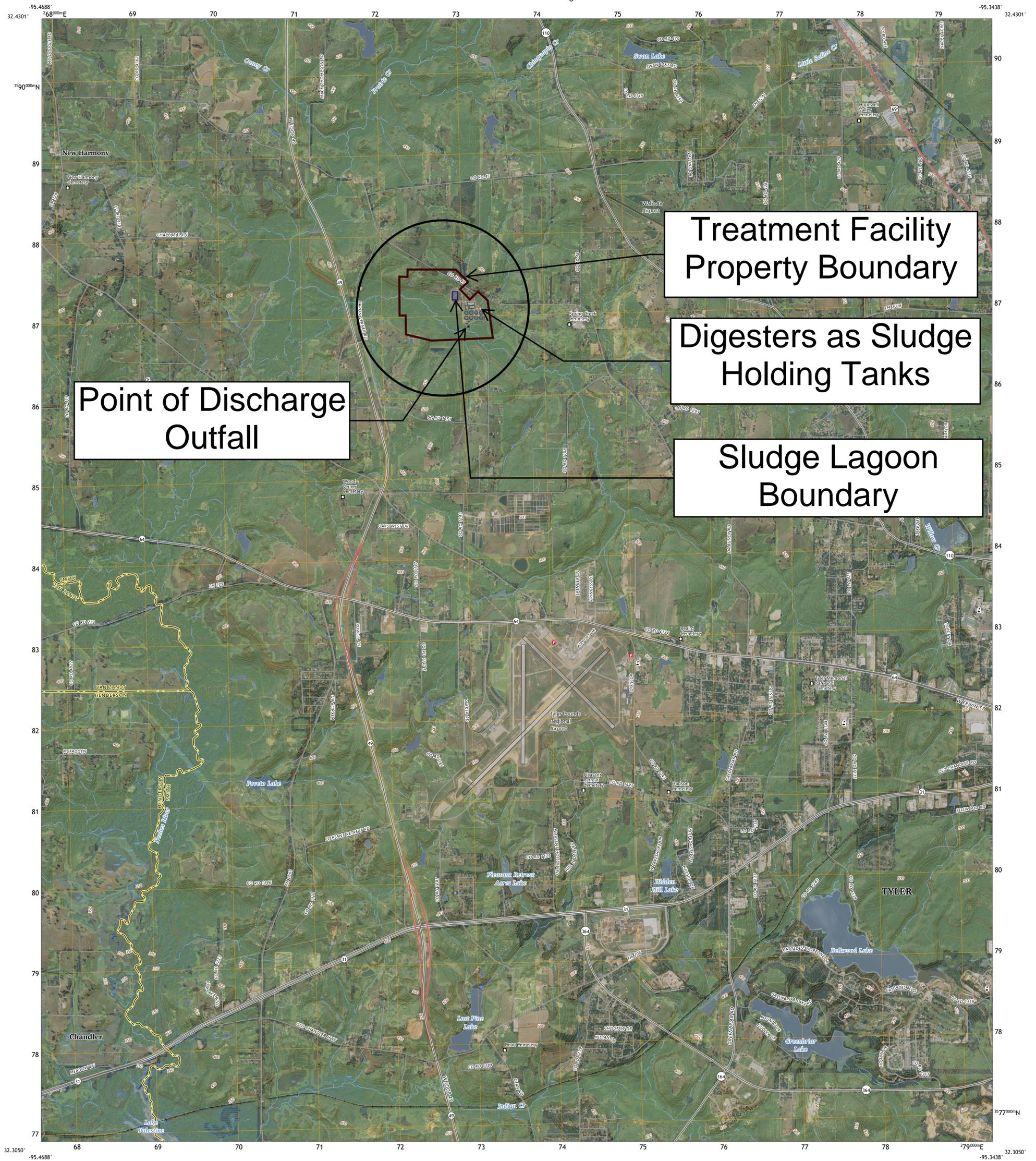
Design Calculations
NOT APPLICABLE for Permit Renewal Application as per
Instructions for Completing Domestic Wastewater Permit
Application

TPDES PERMIT RENEWAL APPLICATION

Attachment c: Process Flow Diagram



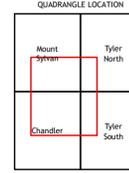
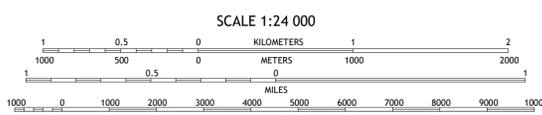
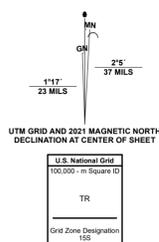
TPDES PERMIT RENEWAL APPLICATION
ATTACHMENT A: Site Drawing



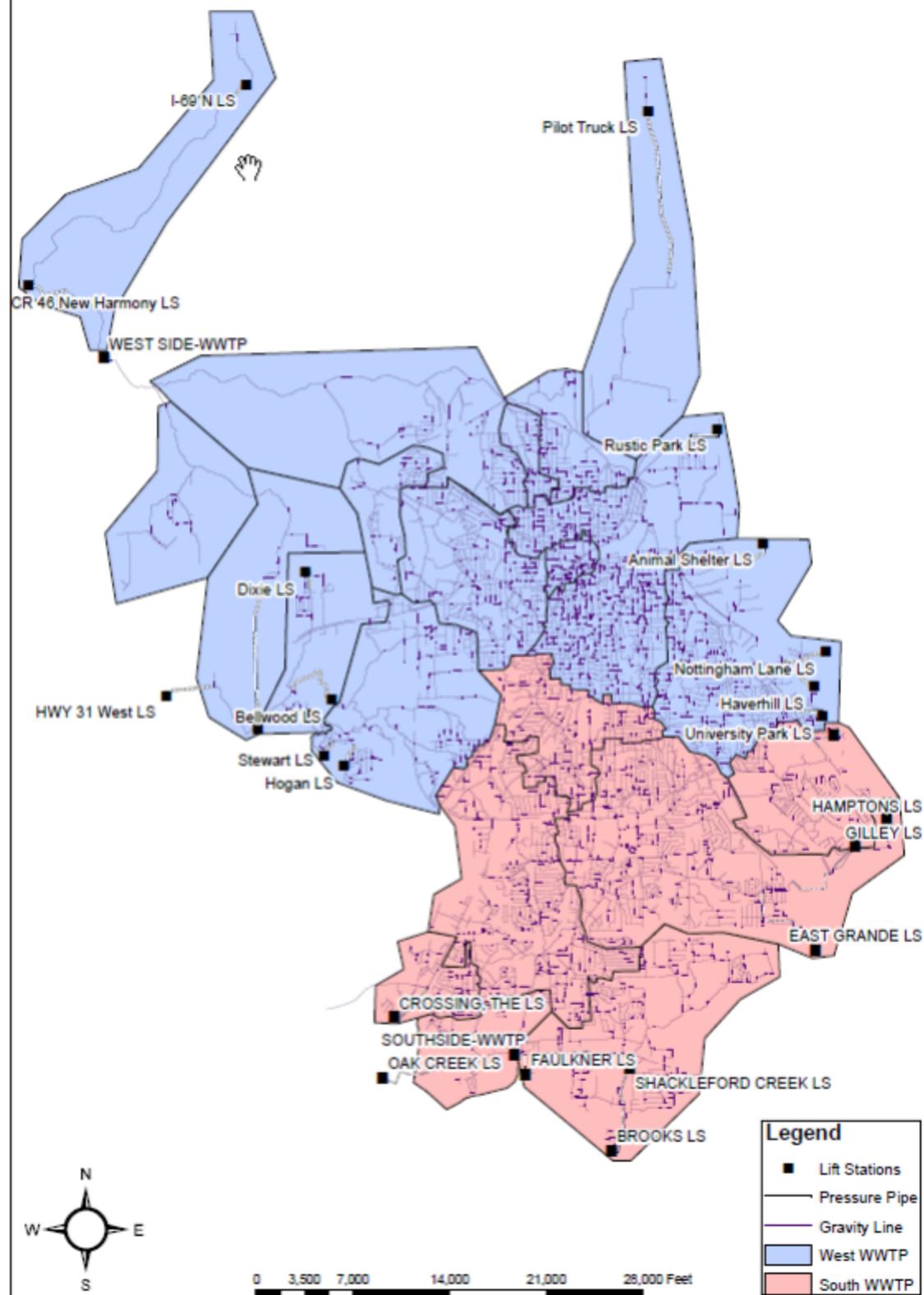
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 15S
Data is provided by The National Map (TNM), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale.
Private lands within government reservations may not be shown. Obtain permission
before entering private lands. Temporal changes may have occurred since these data
were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



7.5-MINUTE TOPO, TX
2024



Water Balance
NOT APPLICABLE for Permit Renewal Application as per
Instructions for Domestic Wastewater Permit Application
Worksheet 3.0

Candice Calhoun

From: Mike Norris <mnorris@tylertexas.com>
Sent: Monday, September 9, 2024 1:33 PM
To: Candice Calhoun
Subject: RE: Application to Renew Permit No. WQ0010653001 - City of Tyler; Westside WWTP
Attachments: Municipal Discharge Renewal Spanish NORI.Spanish.docx

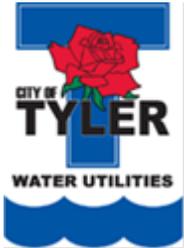
Follow Up Flag: Follow up
Flag Status: Completed

Hello Candice,

Please see the attached Spanish NORI in Word format.

Thanks,

Mike Norris
Manager Wastewater Treatment Systems
14792 County Rd. 192
Tyler, TX 75703
903-939-8278
mnorris@tylertexas.com



cityoftyler.org

From: Candice Calhoun <Candice.Calhoun@tceq.texas.gov>
Sent: Friday, September 6, 2024 5:02 PM
To: Mike Norris <mnorris@tylertexas.com>
Subject: RE: Application to Renew Permit No. WQ0010653001 - City of Tyler; Westside WWTP

Good afternoon, Mr. Norris,

Thank you, I will make that update to the NORI language portion. As for the Spanish NORI, thank you for providing the PDF, however, we do need the document to be in Microsoft Word Format. Please send me the word document.

Regards,



Candice Calhoun

Texas Commission on Environmental
Quality

Water Quality Division

512-239-4312

candice.calhoun@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at
www.tceq.texas.gov/customersurvey

From: Mike Norris <mnorris@tylertexas.com>

Sent: Friday, September 6, 2024 9:23 AM

To: Candice Calhoun <Candice.Calhoun@tceq.texas.gov>

Subject: FW: Application to Renew Permit No. WQ0010653001 - City of Tyler; Westside WWTP

Good Morning Candice,

Attached is the updated Spanish NORI for Item 5.

For Item 4, the NORI language portion, included in the NOD, is correct with the following exception: "Further information may also be obtained from City of Tyler at the address stated above or by calling Mike Norris, Manager Wastewater Treatment Systems, at 903-939-8278."

Thanks and have a great weekend!

Mike Norris

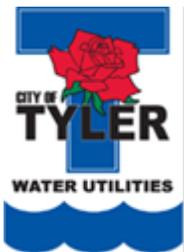
Manager Wastewater Treatment Systems

14792 County Rd. 192

Tyler, TX 75703

903-939-8278

mnorris@tylertexas.com



cityoftyler.org

From: Candice Calhoun <Candice.Calhoun@tceq.texas.gov>

Sent: Thursday, September 5, 2024 3:22 PM

To: Mike Norris <mnorris@tylertexas.com>

Subject: RE: Application to Renew Permit No. WQ0010653001 - City of Tyler; Westside WWTP

Importance: High

Mr. Norris,

Your response to items 1, 2 and 3 of the NOD are sufficient. I do still need responses to item 4 and 5 of the NOD. Item 4 asks that you review the NORI language portion, included in the NOD, and indicate if there are any errors or omissions. Item 5 asks for you to use the Spanish NORI template, and translate the NORI language, provided in the NOD, into Spanish.

Please let me know if you have any additional questions.

Regards,



Candice Calhoun

Texas Commission on Environmental
Quality

Water Quality Division

512-239-4312

candice.calhoun@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at
www.tceq.texas.gov/customersurvey

From: Mike Norris <mnorris@tylertexas.com>

Sent: Wednesday, September 4, 2024 8:29 AM

To: Candice Calhoun <Candice.Calhoun@tceq.texas.gov>

Subject: RE: Application to Renew Permit No. WQ0010653001 - City of Tyler; Westside WWTP

Good Morning Candice,

Attached are the requested items in the Notice of Deficiency letter dated August 28, 2024. Please let me know if there is anything else needed.

Thanks so much,

Mike Norris

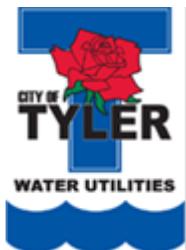
Manager Wastewater Treatment Systems

14792 County Rd. 192

Tyler, TX 75703

903-939-8278

mnorris@tylertexas.com



cityoftyler.org



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by [Title 30, Texas Administrative Code \(30 TAC\), Chapter 39, Subchapter H](#). Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

City of Tyler (CN600335657) operates Westside Plant (RN101611150), a Wastewater treatment facility. The facility is located at 14939 COUNTY ROAD 46, in Tyler, Smith County, Texas 75704. This permit renewal applies for a design flow discharge of 13 MGD with a 2-hour peak flow of 32.5 MGD of treated domestic wastewater and the minor amendment covers the use of anaerobic digesters as sludge holding tanks..

Discharges from the facility are expected to contain free available chlorine, total residual chlorine, total suspended solids, oil and grease, and pH. Additional potential pollutants are included in the Domestic Wastewater Permit Application Technical Report 1.0, Worksheet 4.0. Domestic wastewater and industrial discharge are routed to the Westside WWTP, TPDES Permit No. WQ0010372001 is treated by headworks with mechanical screening and grit removal, followed by a raw sewage pump station, primary clarifiers, first-stage trickling filters, nitrification basins, and second-stage trickling filters. Flow is then clarified,

disinfected in a chlorine contact basin, and discharged to Black Fork Creek. Sludge is dewatered by belt filter presses and hauled to a local landfill.

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí /AGUAS PLUVIALES

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

City of Tyler (CN600335657) opera la Planta Westside (RN101611150), una instalación de tratamiento de aguas residuales. La instalación está ubicada en 14939 County Road 46, en Tyler, Condado de Smith, Texas 75704. Esta renovación de permiso se aplica para una descarga de flujo de 13 MGD con un flujo máximo de dos horas de 32.5 MGD de aguas residuales domesticas tratadas, y la enmienda menor cubre el uso de digestores anaeróbicos como tanques de almacenamiento de lodos.

Se espera que las descargas de la instalación contengan cloro disponible, cloro residual total, solidos suspendidos totales, aceite y grasas, y pH. Una lista de contaminantes potenciales adicionales está incluida en el Informe Técnico 1.0, Hoja de Trabajo 4.0. La descarga de aguas residuales domesticas e industriales se dirigen a la planta de tratamiento de aguas residuales Westside bajo el permiso numero WQ0010372001 de TPDES, . está tratado por obras de cabecera con cribado mecanico y eliminación de arena, seguidas de una estación de bombeo de aguas residuales sin tratar, clarificadores primarios, filtros percoladores de primera etapa, cuencas de nitrificación y filtros percoladores de segunda etapa. El flujo luego se clarifica, se desinfecta en una cuenca de contacto con cloro y se descarga en Black Fork Creek. Los lodos se deshidratan mediante prensas de filtros de banda y se transportan a un vertedero local .

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose “operates” in this section for existing facility applications or choose “proposes to operate” for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose “is” for an existing facility or “will be” for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

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.

Example

Individual Industrial Wastewater Application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas-fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside 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, metal-cleaning waste, and stormwater (from diked oil storage area yards and storm drains)) via Outfall 001. Low-volume waste sources, metal-cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low-volume waste and metal-cleaning waste via Outfall 101 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: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility’s potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

**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: City of Tyler

Permit No. WQ00 10653001

EPA ID No. TX 0047996

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

The Westside Wastewater Treatment plant is located at 14739 County Rd 46, Tyler, TX 75704, on the western side of Tyler, near the intersection of 5118 Chandler Highway (State Highway 31) and Loop 323.

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: Heather Nick

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

Title: Assistant City Manager

Mailing Address: P.O. Box 2039

City, State, Zip Code: 75710

Phone No.: (903) 531-1175 Ext.: Fax No.:

E-mail Address: hnick@tylertexas.com

2. List the county in which the facility is located: Smith
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.

The treated effluent from the Westside Wastewater Treatment Plant is discharged into Black Fork Creek and it flows downstream through Prairie Creek. Ultimately, the effluent reaches a classified segment within the Neches River Basin, likely discharging into Segment 0606- Neches River Below Lake Palestine.

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).

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

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

- Proposed access roads, utility lines, construction easements
- Visual effects that could damage or detract from a historic property's integrity
- Vibration effects during construction or as a result of project design
- Additional phases of development that are planned for the future
- Sealing caves, fractures, sinkholes, other karst features

Disturbance of vegetation or wetlands

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

Vegetative disturbances

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

Existing disturbances, vegetation, and land use are those typically associated with operation and maintenance of a wastewater treatment plant.

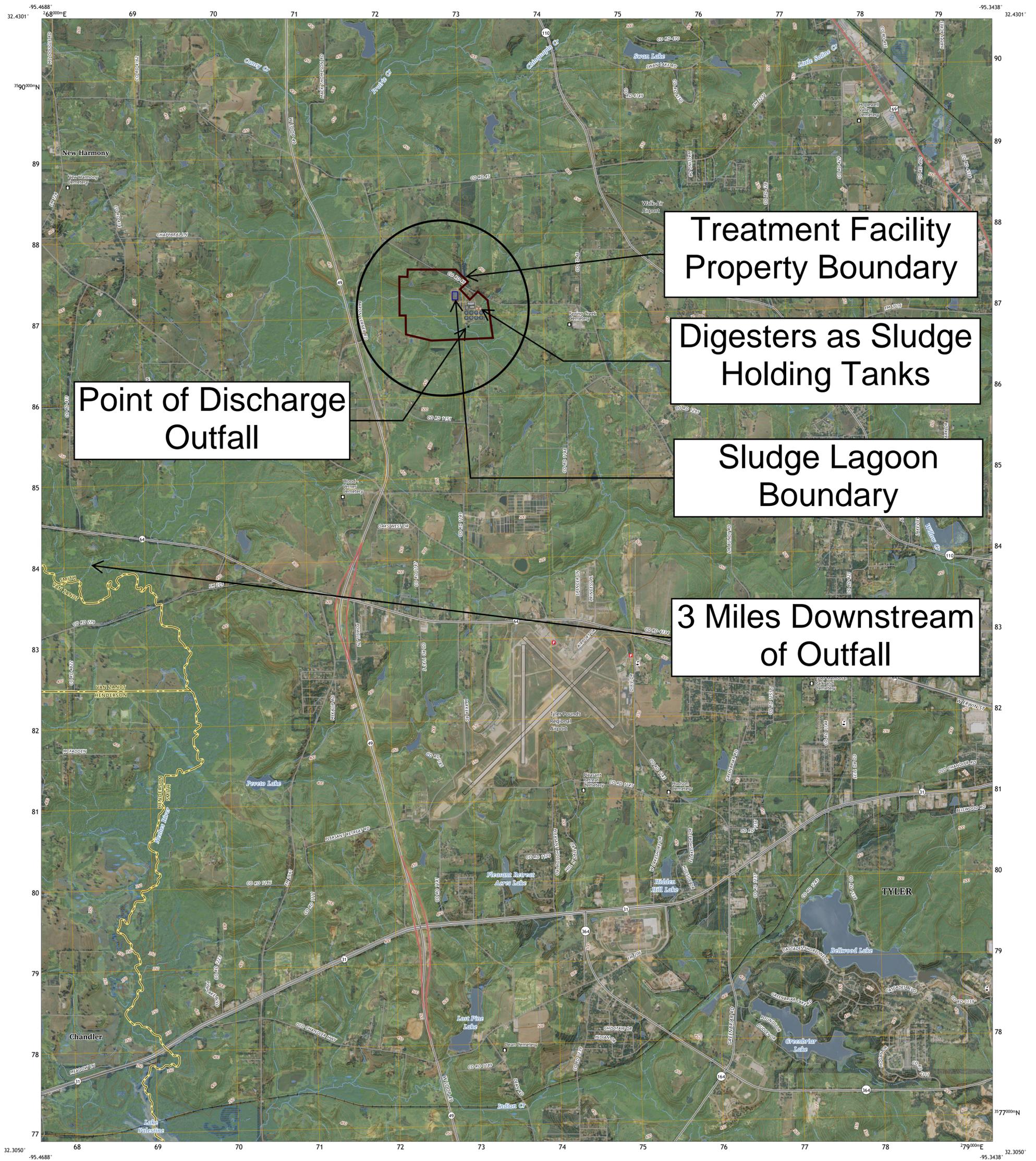
THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

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

N/A

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

N/A



Point of Discharge
Outfall

Treatment Facility
Property Boundary

Digesters as Sludge
Holding Tanks

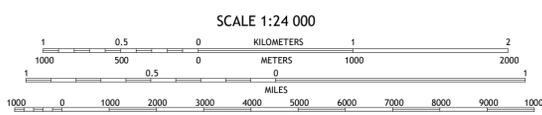
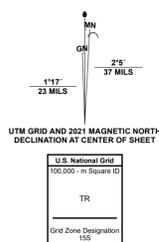
Sludge Lagoon
Boundary

3 Miles Downstream
of Outfall

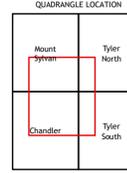
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 15S
Data is provided by The National Map (TNM), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.

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before entering private lands. Temporal changes may have occurred since these data
were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
CONTOUR SMOOTHNESS = Medium



7.5-MINUTE TOPO, TX
2024