REGIONAL WET WEATHER CHARACTERIZATION PROGRAM
ANNUAL MONITORING REPORT APPENDICES
YEAR 3
(JANUARY – DECEMBER 2020)

Appendix A

Regional Wet Weather Characterization Plan Proposal for the Fourth Term Submission and Letter of Approval from TCEQ

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 30, 2017

Ms. Derica Peters, Senior Planner
North Central Texas Council of Governments (NCTCOG)
P.O. Box 5888
Arlington, Texas 76005-5888

Re: Approval of the North Central Texas Regional Wet Weather Characterization Plan Proposal for the Fourth Permit Term

Dear Ms. Peters:

The Texas Commission on Environmental Quality (TCEQ) received the final revised North Central Texas Regional Wet Weather Characterization Plan Proposal for the Fourth Permit Term (Proposal) on June 12, 2017, along with your response letter. The Proposal was originally submitted to TCEQ for review via electronic mail on October 11, 2016. TCEQ and EPA reviewed the Proposal and submitted comments to NCTCOG on March 7, 2017, and further discussed our comments with NCTCOG on a telephone conference on April 11, 2017.

We appreciate the opportunity to review the Proposal and appreciate NCTCOG' efforts to update the Proposal and provide responses to EPA's and TCEQ's comments. All comments have been addressed and TCEQ approves this Proposal for the fourth permit term.

If you have any questions, you are most welcome to call me at (512) 239-4784 or Ms. Hanne Nielsen at (512) 239-6524.

Best regards,

Rebecca L. Villalba

Rebecca L. Villalba, Team Leader
Stormwater & Pretreatment Team (MC 148)
Water Quality Division

RLV/HN/fc

cc: Ms. Allison Henry, Environment and Development Planner
North Central Texas Council of Governments (NCTCOG), P.O. Box 5888
Arlington, Texas 76005-5888

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

REQUEST FOR PROPOSAL

PROJECT TITLE:

PART A: Field Collection and Analysis of Storm Water Samples

PART B: Biomonitoring Sampling and Analysis

RFP #NCT-2011-15

DEPARTMENT: Environment and Development
616 Six Flags Drive, Centerpoint Two
Arlington, Texas 76011

Date Issued: January 28, 2011
Proposal Due Date: February 28, 2011

Acceptance Period: 60 days

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1.0 REQUEST FOR PROPOSAL

1.1 WHAT IS NCTCOG?

The North Central Texas Council of Governments (NCTCOG) is a regional planning agency that serves a 16-county area surrounding the Dallas/Fort Worth Metroplex. Its 240 local government members include cities, counties, independent school districts, and special districts. NCTCOG provides services to its member governments including transportation planning, dissemination of demographic information, assistance with information systems development, environmental studies, planning for community services needs, 9-1-1 planning, emergency preparedness coordination, federally funded employment and training programs, training local government officials and providing continuing education for area police officers.

The Department of Environment and Development assists local governments as they work together to solve regional issues such as solid waste, sustainable development and efficient use of water and other natural resources. To that end, it oversees the coordination and implementation of the state's solid waste program for the region, as well as promotes the principles of Development Excellence and carries out various strategic initiatives, including support for Vision North Texas, the CLIDE Awards Program, and many others. Designated as the Water Quality Planning Agency for the region, the department supports the successful Trinity River COMMON VISION Program and provides assistance with Texas Pollutant Discharge Elimination System (TPDES) permit compliance to local entities.

1.2 PROJECT DESCRIPTION

NCTCOG's Department of Environment & Development is issuing this Request for Proposals (RFP) for technical environmental consultant assistance with a regional storm water monitoring program (regional program) of member entities for compliance with Texas Commission on Environmental Quality (TCEQ) Municipal Separate Storm Sewer System (MS4) TPDES permits for municipal storm water discharges. The regional program is being conducted in cooperation with the cities of Dallas, Fort Worth, Arlington, Garland, Irving, Plano, and Mesquite, and the Texas Department of Transportation-Dallas District and North Texas Tollway Authority (NTTA).

This request for proposals is seeking consultant assistance, not professional services as defined by the Texas Government Code Chapter 2254.002 (Professional and Consulting Services). The services provided under any contract resulting from this RFP will include most if not all of the above-named entities. However, each entity has the option to participate in this contract, depending on the outcome of the selection and contract negotiation process. Consequently, the proposal will need to include unit costs for services and provisions for making adjustments to the sampling plan if one or more entities choose not to participate.

Agencies or parties responding to this RFP, herein referred to as the **Respondents**, should note that the RFP is being offered in two parts (Parts A and B) that are related, but should be responded to separately and may be awarded separately. Respondents to the RFP that wish to submit proposals on both parts are reminded to keep their cost pricing separate so that each part can be considered separately in comparison with other submittals. Requested supporting documents and information in Part B that are duplicative with Part A can be included by reference by those who are submitting for both parts.

1.2.A REGIONAL WET WEATHER CHARACTERIZATION PROGRAM

The Regional Wet Weather Characterization Program (RWWCP) amended January 2011 (Attachment A) has been approved by TCEQ for compliance with TPDES storm water permit requirements. The RWWCP includes a general approach with several variants so it is strongly recommended that the Respondent review this document for specifics. In general, there will be up to eight entities involved in the consultant contract. The City of Fort Worth plans to use their own staff to collect and analyze both the chemical and the biological samples. Most entities will need quarterly samples to be taken from up to three locations in a single watershed each year for four sequential years. There will be a total of 96 annual samples from participating entities (i.e. this excludes Fort Worth's samples), and thus 384 total samples for the permit term. Sampling is expected to begin on January 1, 2012 and will end, December 31st, 2015. Monitoring periods will be by calendar quarters: January 1 - March 31, April 1 - June 30, July 1 - September 30 and October 1 - December 31. See attached map for locations of watersheds.

1.2.B PART A: FIELD COLLECTION OF STORM WATER SAMPLES FOR CHEMICAL ANALYSIS

Under **Part A**'s contract, the Respondent will develop a revised regional sampling protocol based on the RWWCP and the prior permit term's regional monitoring protocol (available at http://www.nctcog.org/envir/SEEclean/stormwater/program-areas/monitoring/RFP/RFP_2011.asp) and seek its approval from NCTCOG and the participating entities. The Respondent is encouraged to conduct a thorough review of the regional monitoring protocol with respect to scientific viability and practicality while developing the Part A protocol. The Respondent shall provide sample collection of storm water for field and laboratory analyses in accordance with this revised protocol. The services will also include delivery of the storm water samples to a qualified laboratory as proposed by the Respondent and agreed to by the regional program participants. The Respondent will demonstrate the availability of staff having competency with testing procedures and reporting requirements and other resources necessary to perform the described sample collection for one or more storm events at multiple predetermined locations within the participating entities' jurisdictions.

Although the watersheds to be sampled have been identified by the participating entities, exact sampling locations will need to be determined by the Respondent in consultation with the contracting entities and NCTCOG. The proposal is expected to include an approach for selecting optimal site locations. Automated sampling equipment used in the prior permit term will be made available for use by the selected Respondent. The selected Respondent will be asked to assess the status of each piece of equipment and to determine what, if anything, is needed to bring the equipment up to a mutually agreed upon standard. Each entity will be responsible for providing equipment that is in good working order. Once the equipment is found acceptable by the selected Respondent, they will be asked to maintain the equipment in similar working condition throughout the term of the contract. Costs for such routine maintenance, including replacement parts as needed, can be included in the overall costs of the contract. Replacement of defective, damaged, or nonfunctional equipment as may be necessary due to adverse weather conditions, vandalism or normal use is not considered routine maintenance and will be the responsibility of the original owner.

The collection of these samples should generally follow the procedures of TCEQ's "*Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods",* RG 415; (TCEQ, 2008) as currently amended.

Sampling will be initiated during the first flush of a storm event based on the criteria identified in the Sampling Protocol. Each sampling event will include collection of a first-flush grab sample and a time-weighted composite (minimum of four aliquots) to be analyzed per station. The first-flush grab sample or samples will be analyzed for:

- bacteria (*E. coli* and total coliform),
- oil and grease (O&G), and
- pH.

The composite sample will be analyzed for:

- 5-day Biochemical Oxygen Demand (BOD_5),
- Chemical Oxygen Demand (COD),
- Total Suspended Solids (TSS),
- Total Dissolved Solids (TDS),
- Metals: Copper, Lead, Zinc, Chromium, Arsenic
- Dissolved and Total Phosphorus,
- Total Nitrogen, and
- Carbaryl

Each sample will be collected in sufficient volume for the selected analyses.

Field data to be collected will include, but not be limited to:

- general observations of site conditions and water quality,
- antecedent dry period,
- time of rainfall event,
- time of subsequent sample collections,
- air and water temperature,
- specific conductance and
- rainfall data specific to the watershed and preferably at or near the sampling station(s).

An estimation of rainfall runoff and stream flow will also be needed in order to calculate pollutant loading. Include methodology to be used for these estimations in the Sampling Protocol. Field data will be reported along with the laboratory analytical data. Some of the sampling stations are expected to be located in remote areas and collections often have to be made under adverse weather conditions.

1.2.C PART A: LABORATORY ANALYSIS OF STORM WATER SAMPLES

The Respondent will provide in the proposal a recommendation of one or more preferred laboratories to conduct the analytical portion of the monitoring program, and include laboratory costs for the analysis of the storm water samples in the overall proposal. Transfer of storm water samples to this laboratory will require using proper chain-of-custody procedures. Field and laboratory analyses are expected to meet minimum regulatory requirements of the Environmental Protection Agency (EPA) and the TCEQ for storm water sampling and analyses, including quality assurance requirements. All laboratory analyses shall be performed by laboratories that have the appropriate National Environmental Laboratory Accreditation Program (NELAP) certification(s) to perform the analyses required under this contract. In addition, the laboratory should have the capability to perform the analyses within the stated data quality objectives including selected method detection limits. All data should be validated per TCEQ requirements for surface water quality data collection criteria, and the data quality objectives (DQOs) established in the Sampling Protocol.

1.2.D PART B: BIOMONITORING SAMPLING AND ANALYSIS

As listed in the regional monitoring plan, some of the participants will be required by permit to perform biomonitoring sampling and analyses in some of their watersheds. Under **Part B**'s contract, the Respondent will be asked to collect these samples, compile the data, and prepare the necessary reports The collection of these samples should be in accordance with the Sampling Protocol based on TCEQ's "*Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods",* RG 415; (TCEQ, 2008) as currently amended, for physical and chemical data, and "*Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data",* RG 416 (TCEQ, 2007*) as currently amended*. These procedures include limited field and laboratory chemical sampling and analyses, benthic macroinvertebrate community characterization using rapid bioassessment protocols (RBP), and a physical stream habitat assessment.

Field sampling should include, at a minimum, the following parameters:

- Temperature (air and water)
- Dissolved Oxygen
- pH
- Specific Conductivity
- Turbidity
- Nitrates
- Phosphates
- Bacteria: *E.coli*

The Respondent will demonstrate the availability of staff and equipment, staff competency with field collection procedures and reporting requirements, and/or other resources necessary to perform the described sample collection at multiple predetermined locations within the participating entities' jurisdictions. The frequency of collection is listed in the regional monitoring plan. Section 2.0 of the RFP includes a link to this information. Although the watersheds to be sampled have been identified by the participating entities, exact sampling locations and appropriate reference sites will need to be determined by the Respondent in consultation with the contracting entities and NCTCOG. The proposal is expected to include an approach for selecting optimal site locations. The Respondent's proposal will need to demonstrate availability and access to a laboratory or location that will be used for sorting and final assessment of the biological samples.

1.2 E DELIVERABLES

In addition to meeting TPDES permit requirements, both the NCTCOG and participating entities will be using the deliverables from this contract to support and enhance local understanding of regional water quality conditions. As such, Respondents are asked to develop each deliverable considering the end-use of all deliverables with respect to conveying information on local and regional water quality conditions to the general public and to the respective participating governing entities (e.g. City Councils, Planning Commissions, etc).

All contract deliverables will be provided in electronic format, with one draft submittal made to obtain NCTCOG and participant's comments, corrections and concerns, and one final submittal that incorporates comments as provided. A memorandum identifying resolution of comments should be provided with each final deliverable. Deliverables under this contract are anticipated to be:

PART A – FIELD COLLECTION AND ANALYSIS OF STORM WATER SAMPLES:

- **Sampling and Analyses Plan and Protocols (SAPP**): Provide a document that outlines appropriate protocols to be used, frequency, type and location of sampling, sample location documentation, and analytical laboratory methods, and data quality objectives (DQOs). Include a table summarizing sample holding times, laboratory methods to be used, and appropriate method detection limits. Include Geographic Information System (GIS)-based mapping that indicates sample locations by types, per watershed. Data validation methods and data quality assurance measures should also be outlined.

- **Annual Reports Summarizing Data (One for each Year's Sample Efforts):** Provide a general summary report that summarizes the methodology used for field and analytical efforts, and the results obtained for the watersheds sampled in that year. Provide GIS-based mapping that indicates sample locations, and analytical results per watershed sampled for each permit year report. Provide an estimate of annualized pollutant loading for the watersheds sampled, with an explanation of methodology used to perform this estimation.

- **Permit Term Summary Report (One Final Report Summarizing Sampling and Analyses for Permit Years 1 through 4):** Provide a Final Permit Term Summary Report that summarizes the methodology used for field and analytical efforts, and the collective regional results obtained for the watersheds sampled through this program. Provide GIS-based mapping that indicates sample locations, and analytical results per watershed sampled for each permit year report. Provide a trend analyses of water quality conditions identified through this permit term, with respect to available data collected during the previous term. Provide a general summary analysis of water quality with respect to the Texas Surface Water Quality Criteria as set forth in 30 TAC Section 307, as currently amended. Provide an estimate of pollutant loading across the region, with an explanation of methodology used to perform this estimation.

- **Electronic Data:** Provide an electronic data deliverable that is consistent with the TCEQ Data Reporting requirements, and that is compatible with the GIS format used by the NCTCOG GIS database.

PART B – BIOMONITORING SAMPLING AND ANALYSIS:

- **Sampling and Analyses Plan and Protocols (SAPP**): Provide a document that outlines appropriate protocols to be used, frequency, type and location of sampling, sample location documentation, and laboratory methods. Include location(s) and rationale for reference sample locations. as well as analytical laboratory methods, and data quality objectives. Include a table summarizing sample holding times, laboratory methods used along with appropriate method detection limits. Include GIS-based mapping that indicates sample locations and types per watershed, and reference sample locations. Data validation methods and data quality assurance measures should also be outlined. Include sample matrices to be used to develop the habitat assessments in accordance with guidance for Rapid Bioassessment Protocols (RBP).

- **Annual Reports Summarizing Data (One for each Year's Sample Efforts):** Provide a general summary report that summarizes the methodology used for field and analytical efforts, and the results obtained for the watersheds sampled in that permit year. Include GIS-based mapping that indicates sample locations, and analytical results per watershed sampled for each permit year. Also include tabular and graphic indication of habitat conditions for each watershed sampled for each sample period, as developed using standard RBP methods. Provide a discussion of findings relative to observed habitat conditions. Provide a general summary analysis of water quality with respect to the Texas Surface Water Quality Criteria as set forth in 30 TAC Section 307, as currently amended. Provide a general discussion of any observed anomalies such as extended drought, 100-year flood, or other heavy precipitation periods that may affect the water quality, and associated pollutant loading.
- **Permit Term Summary Report (One Final Report Summarizing Sampling and Analyses for Permit Years 1 through 4):** Provide a general summary report that summarizes the methodology used for field and analytical efforts, and the collective regional results obtained for the watersheds sampled through this program. Provide GIS-based mapping that indicates sample locations, and analytical results per watershed sampled. Also include tabular and graphic indication of habitat conditions for each watershed sampled, for each sample period, as developed using standard RBP methods. Provide a discussion of findings relative to observed habitat conditions. Provide a trend analysis of habitat conditions identified through this permit term. Provide a general summary analysis of water quality with respect to the Texas Surface Water Quality Criteria as set forth in 30 TAC Section 307, as currently amended.
- **Electronic Data:** Provide an electronic data deliverable that is consistent with the TCEQ Data Reporting requirements, and that is compatible with the GIS format used by the NCTCOG GIS database.

Changes to the deliverables may be revised upon agreement by the NCTCOG and the participating entities.

1.3 GENERAL QUALIFICATION REQUIREMENTS

A. Respondents submitting a proposal will be required to comply with provision 5159(a) of "Vernon's Annotated Civil Statute of the State of Texas" with respect to the payment of prevailing wage rates.

B. Respondents shall be responsible for obtaining any necessary licenses and permits, and for complying with any applicable federal, state, and municipal laws, codes, rules and regulations in connection with the work required by this contract.

C. Respondents shall have a minimum of 2 years experience in field collection of storm water samples. Respondents shall include with their proposal package the identification of at least three past or current clients for efforts similar in nature to the requirements of this request.

D. NCTCOG reserves the right to accept or reject any and/or all proposals or to cancel this notice at any time.

E. A response to this Request for Proposal (RFP) does not commit NCTCOG to a contract, or to pay any costs incurred in the preparation of such response.

F. Unless the Respondent specifies in its proposal, the NCTCOG may award the contract for any items/services or group of items/services in the RFP and may increase or decrease the quantity specified.

G. NCTCOG reserves the right to hold and accept any proposal for a period of sixty (60) days after the response deadline.

H. NCTCOG reserves the right to negotiate the final terms of any and all contracts with the selected Respondents and such agreements negotiated as a result of this RFP may be re-negotiated and/or amended in order to successfully meet the needs of the agency and its members.

I. NCTCOG reserves the right to waive any defect in this procurement process or to make changes to this solicitation as it deems necessary. NCTCOG will provide notifications of such changes to all Respondents recorded in the official record (Distribution Log/Receipts Record) as having received or requested an RFP.

J. NCTCOG reserves the right to contact any individual, agencies or employers listed in a proposal, to contact others who may have experience and/or knowledge of the Respondent’s relevant performance and/or qualifications; and to request additional information from any and all Respondents.

K. NCTCOG reserves the right to conduct a review of records, systems, procedures, etc., of any entity selected for contracting. This may occur prior to, or subsequent to the award of a contract. Misrepresentation of the Respondent's ability to perform as stated in the proposal may result in cancellation of the contract.

L. NCTCOG reserves the right to withdraw or reduce the amount of a contract, or to cancel any contract resulting from this procurement if adequate funding is not available.

M. Respondents shall not, under penalty of law, offer or provide any gratuities, favors or anything of monetary value to any officer, member, employee or agent of NCTCOG or any of the participating member entities for the purpose of or having the effect of influencing favorable disposition toward their own proposal or any other proposal submitted hereunder.

N. No employee, officer or agent of NCTCOG or the participating member entities shall participate in the selection, award or administration of a contract if a conflict of interest, real or apparent, exists.

O. Respondents shall not engage in any activity that will restrict or eliminate competition. Violation of this provision may cause a Respondent’s proposal to be rejected. This does not preclude joint ventures or subcontracts.

P. All proposals submitted must be an original work product of the Respondent. The copying, paragraphing or other use of substantial portions of the work product of others and submitted hereunder, as original work of the Respondent is not permitted. Failure to adhere to this instruction may cause the proposal(s) to be rejected.

Q. The only purpose of this RFP is to ensure uniform information in the selection of proposals and procurement of services. This RFP is not to be construed as a purchase agreement or contract, or as a commitment of any kind, nor does it commit the NCTCOG to pay for costs incurred prior to the execution of a formal contract unless such costs are specifically authorized in writing by NCTCOG.

R. The contents of a successful proposal may become a contractual obligation, if selected for award of a contract. Failure of the Respondent to accept this obligation may result in cancellation of the award. No plea of error or mistake shall be available to successful Respondent(s) as a basis for release of proposed services at stated price/cost. Any damages accruing to the NCTCOG as a result of the Respondent's failure to contract may be recovered from the Respondent.

S. A contract with the selected provider may be withheld at sole discretion if issues of contract compliance or questioned/disallowed costs exist, until such issues are satisfactorily resolved. Award of contract may be withdrawn by NCTCOG if resolution is not satisfactory to NCTCOG.

T. NCTCOG is the responsible authority for handling complaints or protests regarding the proposal selection process. This includes, but is not limited to, disputes, claims, protests of award, source evaluation or other matters of a contractual nature. Matters concerning violation of law shall be referred to such authority as may have proper jurisdiction.

U. Once the selection(s) of a Respondent(s) has been made, all Respondents to this RFP will be notified in writing of the results. Any protest regarding this process must be filed with NCTCOG in accordance with the following procedure. NCTCOG would like to have the opportunity to resolve any dispute prior to the filing of an official complaint by the protester. The protester should contact NCTCOG's Deputy Executive Director, at (817) 695-9121, P.O. Box 5888, Arlington, Texas 76005-5888, so that arrangements can be made for a conference between NCTCOG and the protester. Copies of the appeal process will be made available to the protester.

V. At all times during the term of a contract with NCTCOG, the contracted party shall procure, pay for and maintain, with approved insurance carriers, the minimum insurance requirements as required by law and shall require all subcontractors contractors performing work for which the same liabilities may apply under this contract to do likewise. The contractor may cause the insurance to be effected in whole or in part by the subcontractors under their contracts. NCTCOG reserves the right to waive or modify insurance requirements at its sole discretion.

W. Contractor covenants and agrees to indemnify and hold harmless and defend NCTCOG, its officers and employees, from and against any and all suits or claims for damages or injuries, including death, to persons or property, whether real or asserted, arising out of any negligent act or omission on the part of the contractor, its officers, agents, servants, employees, or subcontractors, and the contractor does hereby assume all liability for injuries, claims or suits for damages to persons, property, or whatever kind of character, whether real or asserted, occurring during or arising out of the performance of a contract as a result of any negligent act or omission on the part of the contractor, its officers, agents, servants, employees, or subcontractors to the extent permitted by law.

1.4 INTERPRETATION OF REQUEST FOR PROPOSAL DOCUMENTS

A written request for an interpretation of the Request for Proposal (RFP) may be made to the Department of Environment and Development, by either fax or mail or email, at any time up to seven (7) calendar days prior to the due date for the Proposals. The person submitting the request will be responsible for its prompt delivery. Upon receiving such a request, the NCTCOG will issue an interpretation of the Proposal Documents as a formal addendum to the RFP.

A Pre-Proposal Conference will be held on February 11, at 9:30 a.m. in the Tejas Room on the third floor of the NCTCOG offices at 600 Six Flags Dr., Arlington, Texas. At this time, Respondents may ask questions pertaining to the RFP but attendance at this meeting is not required. Responses to these questions will be recorded and included as an addendum to this RFP.

A copy of any addenda will be posted on the NCTCOG website at www.dfwstormwater.com. They can be faxed or emailed to interested parties upon request. All addenda must be submitted with the Respondent's Proposal. The NCTCOG will not be responsible for any other explanations or interpretations.

1.5 CONFLICTS & QUESTIONS

Should there be conflicts between the proposal documents and the final executed contract document; the final contract shall take precedence.

Questions regarding this Request for Proposal should be submitted in writing by 5:00 p.m. Wednesday, February 23 to:

Keith Kennedy
Manager of Environmental Programs
Department of Environment and Development
North Central Texas Council of Governments
616 Six Flags Drive, Centerpoint Two
Arlington, Texas 76011
kkennedy@nctcog.org

Responses to all questions will be submitted in writing to all potential respondents and posted on NCTCOG's website.

2.0 PROPOSAL SUBMITTAL

Before submitting a proposal, the Respondent is required to thoroughly examine the RFP documents and familiarize themselves with federal, state, and local laws and ordinances; and rules and regulations applicable to this requisition. Respondents should refer to Attachment A to review the details of the RWCCP. A copy of the regional monitoring protocol used for the prior Permit Term may also be obtained at:
http://www.nctcog.org/envir/SEEclean/stormwater/program-areas/monitoring/RFP/RFP_2011.asp

Each Respondent should include all items necessary to complete the project(s) to which they are submitting in their proposal (Part A and/or Part B); otherwise the entire proposal may be considered non-responsive and rejected. See detailed instructions for Statement of Work in Section 3.3 of these proposal documents. In case of ambiguity or lack of clarity, the NCTCOG reserves the right to adopt the most advantageous construction thereof to the NCTCOG or to reject the proposal.

Additional proposal documents may be obtained at the NCTCOG Department of Environment and Development, 616 Six Flags Drive, Centerpoint II, Arlington, Texas upon request. A photocopying charge may be assessed. Copies of these documents and other relevant information can also be obtained directly from the NCTCOG website at www.dfwstormwater.com.

Proposals should be printed double-sided and must be submitted in a sealed envelope, addressed to and received at the reception desk of NCTCOG, 616 Six Flags Drive, Arlington, Texas **no later than 4:00 p.m. on February 28, 2011**. The name of the Respondent and the project title must be clearly marked on the envelope and the statement "**PROPOSAL DOCUMENTS ENCLOSED, DELIVER TO DEPARTMENT OF ENVIRONMENT AND DEVELOPMENT"** placed in the lower left-hand corner of the envelope in which the documents are delivered. If the documents are placed in an envelope that is contained inside another envelope, the statement shall be placed on the outermost envelope. Any proposal documents not properly marked or not received in the proper place by 4:00 p.m., February 28, 2011 will be considered non-responsive.

In addition to this hard copy of the proposal documents, an electronic copy of all documents for consideration must be submitted on compact disc (CD) in either MS Word or Adobe pdf format.

Proposals may be withdrawn at any time before award. Written proposals are withdrawn upon receipt by the NCTCOG Project Representative of a written notice of withdrawal.

NO FAXED, EMAILED OR LATE PROPOSALS WILL BE ACCEPTED

2.1 OPENING OF PROPOSALS

The name of all Respondents submitting proposals will be read aloud at the NCTCOG office at 4:05 p.m. on February 28 2011. The location of this reading will be posted on the NCTCOG electronic calendar and is open to anyone; however, attendance by Respondents is not required. The name of all Respondents submitting proposals will subsequently be posted on the NCTCOG website by March 1, 2011. Proposals shall be handled so as to avoid the disclosure of the remainder of their contents to competing Respondents and so as to keep such contents secret during negotiations. All proposals will be made available for public inspection after the contract is awarded, but trade secrets and confidential information in the proposals will not be open to public inspection. Respondents should specifically identify all proprietary materials when submitting proposals.

2.1.A PROPOSAL EVALUATION

This RFP for consultant assistance uses a qualifications-based procurement process which includes cost considerations. Proposals will be evaluated by a committee made up of members of the participating entities, facilitated by NCTCOG staff who are non-voting members of the committee. Selections for both Part A and Part B will be based on the completeness and quality of the proposal documents and weighted as shown for the following factors:

Recommended Approach and Thoroughness of Proposal	30
Number and Qualifications of Personnel Available for Task	20
Field Collection Experience and Past Performance	20
Total Cost	15
Ability to provide Services for both Part A and Part B	10
Historically Underutilized Business (HUB)	5

Each Respondent is responsible for submitting all relevant, factual, and correct information for evaluation of the above criteria with their proposal. Failure to provide information for any of these components will be considered grounds for rejection of the proposal. The Evaluation Committee will evaluate each proposal based on the information submitted. If additional information is submitted with the proposal, the Respondent must clearly make reference to it in the appropriate location in the proposal. The top-ranked Respondents will move on to the "Finalist Interviews". Finalists will be required to make a presentation to the Evaluation Committee on the date listed below. All Respondents will be notified of their proposal's status after the scoring has been completed.

NCTCOG reserves the right to award a contract to the Respondent(s) whose proposal is considered most advantageous (price and other factors considered) to NCTCOG and its members. More than one contract may be awarded from this request if necessary.

Any proposal submitted in accordance with this RFP shall remain valid for a period of 60 calendar days from the proposal due date.

2.1.B SCHEDULE OF EVENTS

EVENT	DATE
Issue RFP	January 28, 2011
Pre-Proposal Conference	February 11, 2011
Deadline for Submission of Proposals	**February 28, 2011**
Notification of Finalists	March 18, 2011
Finalists Interview	March 28, 2011
Expected Award of Contract	April 30, 2011
Expected Contract Start Date	October 1, 2011
Expected Contract End Date	June 30, 2016

2.1.C CONTRACT PERIOD/TYPE

The successful Respondent will be awarded a 57-month Cost Reimbursement Contract starting on or about October 1, 2011 and ending on June 30, 2016.

2.1.D NEGOTIATION OF THE CONTRACT

The NCTCOG will meet with the successful Respondent and negotiate a Contract based on the Proposal Documents. The NCTCOG is not obligated to accept any exceptions made by Respondent. After the negotiations, the NCTCOG will make final changes to the Contract documents and issue them along with a Notice of Awards to the successful Contractor(s).

2.1.E AWARD OF THE CONTRACT

The NCTCOG may conduct any investigations as deemed necessary to assist in the evaluation of any proposal and to establish the responsibility, qualifications, and financial capability of the Contractor, subcontractors, and other persons who are proposed to work on the project.

The NCTCOG will send a Notice of Award letter to the successful Contractor(s) with three (3) sets of contract documents. The successful Contractor(s) must execute the Contract in each set and return all three sets to the NCTCOG within the time period specified in the notice of award letter. Upon receipt of the three sets of contract documentation, the NCTCOG will execute each set and issue one set to the successful Contractor(s).

2.1.F RESERVATIONS

The NCTCOG reserves the right to reject any or all proposals and to waive any or all informalities.

2.1.G RIGHT TO TERMINATE

The NCTCOG will reserve the right to terminate the contract if the service provided by the contractor is unsatisfactory or does not meet expectations and the contractor, once notified of the dissatisfaction, has been unwilling to make changes in a reasonable amount of time.

3.0 PROPOSAL DOCUMENTS

3.1 PROPOSAL DOCUMENT CHECKLIST

All Proposal Documents, including this Checklist, must be completed in full and submitted in a sealed envelope, in the requested order, to be considered as a responsive submittal.

Proposal Documents	Initial if Included
PROPOSAL DOCUMENT CHECK LIST	______
ACKNOWLEDGE REQUEST FOR PROPOSAL ADDENDA	______
PROPOSAL SUMMARY WITH COST ESTIMATE	______
STATEMENT OF WORK	______
QUALIFICATIONS OF RESPONDENT	______
LIST OF SUBCONTRACTORS	______
INSURANCE CERTIFICATES	______
RESPONDENT'S LEGAL & COMPLIANCE HISTORY	______
RESPONDENT'S LICENSES & CERTIFICATES	______
CERTIFICATIONS OF RESPONDENT	______
HISTORICALLY UNDERUTILIZED BUSINESSES CERTIFICATION (IF APPLICABLE)	______
ELECTRONIC COPY (CD) OF PROPOSAL DOCUMENTS	______
ATTACHMENT A – PART A COST BREAKDOWN	______
ATTACHMENT B – PART B COST BREAKDOWN	______

I understand that all of these items are required for my submittal to be considered responsive.

RESPONDENT:

______________________________ BY:______________________________
Company Name (Print or type name of signatory)

______________________________ ______________________________
Address (Signature)

______________________________ ______________________________
City, State, Zip Title (print or type)

3.1.A ACKNOWLEDGEMENT OF RECEIPT OF REQUEST FOR PROPOSAL ADDENDA

Check if applicable ____

The undersigned acknowledges the receipt of the following addendum(s) to the Request for Proposals, and has attached all addenda following this page. (Add lines if necessary).

Addendum Number 1 ________________________
(Date received)

Addendum Number 2 ________________________
(Date received)

Addendum Number 3 ________________________
(Date received)

Check if applicable ____

The undersigned acknowledges the receipt of no addenda to the Request for Proposals.

RESPONDENT:

______________________________ BY:______________________________
Company Name (Print or type name of signatory)

______________________________ ______________________________
Address (Signature)

______________________________ ______________________________
City, State, Zip Title (print or type)

3.2 PROPOSAL SUMMARY WITH COST ESTIMATE

TO THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS:

The undersigned hereby proposes to furnish all labor, materials, supplies, superintendence, and any other items or services necessary to perform field collection, laboratory analyses and reporting services for the North Central Texas Council of Governments, which includes, but is not limited to, the collection of storm water samples and/or biological specimen collections as specified in these proposal documents.

The key personnel identified in this proposal are capable of performing sample collection services, either at this location or through subcontracts.

All Proposal Documents have been submitted in one sealed envelope.

____ Addenda to the Request for Proposal have been received.

Part A: The total cost estimate for all labor, equipment (excluding automated samplers), and materials, including laboratory analysis of the storm water samples is $_________________. Unit prices are provided within the Proposal Documents.

Part B: The total cost estimate for all labor, equipment, and materials, including assessment of the biological samples is $_________________. Unit prices are provided within the Proposal Documents.

This Proposal Summary and the accompanying Proposal Documents are intended to be complete and will remain valid for sixty (60) calendar days from the due date of the submittal.

RESPONDENT:

______________________________ BY: ______________________________
(Company Name) (Print or type name of signatory)

______________________________ ______________________________
(Address) (Signature)

______________________________ ______________________________
(City, State, Zip) Title (Print or type)

______________________________ ______________________________
(Phone) (FAX)

____
(Email)

3.3 STATEMENT OF WORK

The items listed below shall be submitted with each proposal in the order shown. Each section should be clearly labeled. Failure of a Respondent to include all listed items may result in the rejection of the proposal.

I – Overview (1-3 pages)

State the underlying philosophy of your firm in providing the requested service and the overall approach you intend to take. Describe your understanding of the relevance of this project to the participating entities and to the North Central Texas area in general.

II – Plan of Approach (5-20 pages for each part)

For Part A, include:

- Description of proposed contract team, and the role to be played by each member. Include an organizational chart
- Detailed plan of approach (including major tasks and sub-tasks) for handling multiple and distant sampling locations for stochastic storm events under strict permit requirements.
- Types of equipment and methodology.
- Chain-of-custody procedures and other protocols
- Laboratory analysis arrangements
- Detailed timeline for getting sites ready to sample by January 1, 2012.
- Description of Deliverables

For Part B, include:

- Description of proposed contract team, and the role to be played by each member. Include an organizational chart
- Detailed plan of approach (including major tasks and sub-tasks) for handling multiple sampling locations, including reference sites.
- Types of equipment and methodology.
- Laboratory-type facility arrangements for assessment of biotic community assemblages
- Detailed timeline for getting sites ready to sample by January 1, 2012.
- Description of Deliverables

III – Costs to NCTCOG (2-5 pages for each part)

PART A – FIELD COLLECTION AND ANALYSIS OF STORM WATER SAMPLES: - Provide a detailed breakdown of costs for the requested services. A suggested categorization could include: initial site preparation; lab coordination; evaluation of existing equipment and recommendations for upgrading; storm sample collection (unit and overall costs); laboratory analysis; submittal of data to NCTCOG; routine maintenance and replacement of equipment, preparation of interim and final summary reports, etc. Please complete and provide Attachment B - Cost Breakdown for Part A.

PART B – BIOMONITORING SAMPLING AND ANALYSIS: - Provide a detailed breakdown of costs for the requested services. A suggested categorization could include: site identification; sample collection (unit and overall costs); sample assessment; submittal of data to NCTCOG; procurement and replacement of field equipment, preparation of interim and final summary reports, etc. Please complete and provide Attachment C - Cost Breakdown for Part B.

IV – Prior Experience, Capacity and References (No page limit)

Provide information that documents your firm's qualifications to perform the desired work, including its ability, capacity, skill, and financial strength. Include at least three (3) references of similar projects conducted in the past 5 years or less. Include a contact name, phone number and brief description of the project completed for each reference. If submitting HUB certification documentation, include it in Section 3.10.

3.4 QUALIFICATIONS OF THE RESPONDENT

The Respondent shall provide its company name, address, telephone number(s), and email addresses for the local office as well as the headquarters.

The Respondent shall attach a copy of its current Statement of Qualifications. If subcontractors are to be utilized for any services to be provided, a current Statement of Qualifications for those companies must also be included.

The Respondent shall submit a brief résumé (one page maximum, 10 pt type minimum) of each professional person (key personnel) who will be assigned to this contract. Identify key persons by name and title, longevity with firm, and describe the primary work assigned, as well as the estimated percentage of time that each person will devote to this contract.

3.5 LIST OF SUBCONTRACTORS

Respondents shall complete the following information and submit it with the Qualifications Documents to permit the NCTCOG to more fully evaluate the subcontractor's qualifications prior to awarding the contract.

Subcontractor's Name	Subcontractor's Address	Subcontractor's Telephone No.	Subcontractor's email address	Proposed Tasks on the Project

IF NECESSARY, PROVIDE MORE SHEETS TO DESCRIBE ADDITIONAL SUBCONTRACTORS.

3.6 INSURANCE CERTIFICATES

FOR PURPOSES OF THIS REQUEST FOR QUALIFICATIONS, PLEASE ATTACH A COPY OF YOUR CURRENT INSURANCE CERTIFICATE(S) BOUND WITHIN THE QUALIFICATIONS PACKAGE.

The successful Contractor will be required by the contract to have insurance coverage at least as stringent as detailed below. Within 30 days of the contract being fully executed, the Contractor shall deliver to the NCTCOG certificates documenting this coverage. The NCTCOG may elect to have the Contractor submit its entire policy for inspection.

A. Commercial General Liability Insurance - $1,000,000 each occurrence.

B. <u>Professional Liability Insurance:</u> (i.e. Asbestos Abatement Consultant Professional Liability Insurance or Industrial Hygienist Errors and Ommissions Liability Insurance) $1,000,000 each ocurrence.

C. Automobile Liability Insurance –
Coverage on vehicles involved in the work performed under this contract:
$500,000 per accident on a combined single limit basis
or:
$250,000 Bodily injury/person
$500,000 Bodily injury/accident
$100,000 Property damage

Uninsured/Underinsured Motorist --
$20,000 Bodily Injury each person,
$40,000 Bodily Injury each accident;
$15,000 Property Damage each accident.

D. Worker's Compensation –
Statutory limits for Worker's Compensation plus Employer's liability at a minimum:
$500,000 each accident;
$500,000 disease - policy limit; and
$500,000 disease - each employee.

E. The following shall pertain to all applicable policies of insurance listed above:

1. Each insurance policy required by this Contract, except for Workers Compensation insurance and professional liability insurance policies shall be endorsed to include the NCTCOG, its officers, agents, employees, representatives, and volunteers as additional insured in respect to operations and activities of, or on behalf of the named insured, performed under contract with the NCTCOG.

2. Subcontractors shall be covered under the Contractor's insurance policies or they shall provide their own insurance coverage; and, in the latter case, documentation of coverage shall be submitted to the Contractor prior to the commencement of work and the Contractor shall deliver such to the NCTCOG.

3. Prior to commencing work under the contract, the Contractor shall deliver to the NCTCOG insurance certificate(s) documenting the insurance required for performance under this contract, including the required terms and clauses.

4. Each insurance policy required by this contract shall contain the following clause or reasonably equivalent terms:

“This insurance shall not be canceled, limited in scope or coverage, or non-renewed unless a thirty (30) day prior written notice has been given to the Director of Environment and Development, NCTCOG, 616 Six Flags Drive, Centerpoint Two, Arlington, Texas 76011.”

5. The insurers for all policies must be approved to do business in the State of Texas and be currently rated in terms of financial strength and solvency to the satisfaction of the Deputy Executive Director for the NCTCOG.

6. The deductible or Self-Insured Retention (SIR) affecting the required coverage must be deemed acceptable by the Deputy Executive Director for the NCTCOG; or, in lieu of traditional insurance, alternative coverage maintained through insurance pools or risk retention groups must also be approved by NCTCOG’s Deputy Executive Director.

3.7 RESPONDENT'S LEGAL AND COMPLIANCE HISTORY

The Respondent's legal and compliance history is a critical component of this Request for Proposals. Read this section with due care and respond accordingly. Failure of the Respondent to provide all the information requested and to certify the report, will result in the Respondent's submittal being declared non-responsive.

The Respondent shall attach a written report of any legal action relating to the protection of the environment brought against the:

Respondent;
Respondent's officers;
Respondent's employees; AND
Respondent's proposed subcontractors

The report shall include all legal action brought within five (5) years of the closing date of this Request for Proposal. The report shall detail the substance, status, and outcome of such legal action. This includes, without limitation, the names of the agency and/or persons bringing the action, all relevant dates, and all fines, judgments, and/or settlements.

"LEGAL ACTION" means: ANY enforcement action by the United States Environmental Protection Agency, the Occupational Safety and Health Administration, any other federal agency, the Texas Commission on Environmental Quality (including its predecessor agencies the Texas Natural Resource Conservation Commission, the Texas Water Commission and the Texas Air Control Board), the Texas Department of Health, and any other state agency, commission or department, whether in Texas or elsewhere, as a result of violations, real or alleged, of any laws, licenses, permits, judicial orders, or administrative orders, relating to the protection of the environment. In this context, enforcement action shall include without limitation, written warnings, notices of violation, consent orders or agreements, compliance orders, administrative hearings, and criminal prosecution. Legal action also means any civil litigation brought by any person relating to the protection of the environment.

"RELATING TO THE PROTECTION OF THE ENVIRONMENT" means: requirements pertaining to the manufacture, processing, distribution, use, handling, storage, transportation, reporting, records keeping, permitting, licensing, treatment, disposal, emission, discharge, spill, release, or threatened release of hazardous materials, hazardous substances, hazardous wastes, toxic substances, petroleum, industrial waste, solid waste, pollutants or contaminants into or onto the air, surface water, drinking water, groundwater, storm water, publicly owned treatment works, or land.

THE REPORT SHALL BE SIGNED AND CERTIFIED by an authorized representative of the Respondent, using the form on the following page. **The top portion of the form is to be completed if a report is attached. The bottom portion of the form is to be completed if the Respondent has no legal actions to report.**

An authorized representative of the Respondent shall mean (1) if the Respondent is a corporation: the president, secretary, or treasurer, or a vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; (2) if the Respondent is a partnership, a general partner; and (3) if the Respondent is a sole proprietorship, the sole proprietor.
INCLUDE A COPY OF THE REPORT FOLLOWING THE CERTIFICATION PAGE BOUND WITHIN THE PROPOSAL PACKAGE

CERTIFICATION OF RESPONDENT'S LEGAL AND COMPLIANCE HISTORY

Complete ONE of the Following Certifications:

I certify under penalty of law that the attached report of Respondent's Legal and Compliance History was 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 that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RESPONDENT:

______________________________ BY:____________________________
Company Name (print or type name of signatory)

______________________________ ______________________________
(Signature) Title (print or type)

____
Date

I certify under penalty of law that the legal and compliance history of Respondent, Officer's officers, Respondent's employees, and Respondent's proposed subcontractors was researched 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, I hereby certify that no legal action relating to the protection of the environment was brought against Respondent, Respondent's officers, Respondent's employees, or Respondent's proposed subcontractors within the preceding five years. To the best of my knowledge and belief, this statement is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RESPONDENT:

______________________________ BY:____________________________
Company Name (print or type name of signatory)

______________________________ ______________________________
(Signature) Title (print or type)

____
Date

3.8 RESPONDENT’S LICENSES & CERTIFICATES

The Respondent shall procure all permits and licenses, pay all charges, costs, fees, and give all notices necessary and incident to the due and lawful prosecution of the work included under this contract.

The Respondent must provide a copy of the appropriate certifications, registrations, licenses and related certificates (including subcontractors) with their submittal.

ATTACH COPIES OF CURRENT APPLICABLE LICENSES AND CERTIFICATES
BOUND WITHIN THE PROPOSAL PACKAGE

3.9 CERTIFICATIONS OF RESPONDENT

I hereby certify that the information contained in this proposal and any attachments is true and correct and may be viewed as an accurate representation of proposed services to be provided by this organization. I certify that no employee, board member, or agent of the North Central Texas Council of Governments has assisted in the preparation of this proposal. I acknowledge that I have read and understand the requirements and provisions of the Request for Proposal and that the organization will comply with all rules, regulations and other applicable local, state, and federal regulations and directives in the implementation of this program. I also certify that I have read and understood the contents of this Request for Proposals and will comply with the terms; and furthermore that I, ______________________________________ (typed or printed name) certify that I am the _________________________ (typed title) of the corporation, partnership, or sole proprietorship, or other eligible entity named as Respondent and Respondent herein and that I am legally authorized to sign this offer and to submit it to the North Central Texas Council of Governments, on behalf of said Respondent by authority of its governing body.

Equal Opportunity and Nondiscrimination

As a condition of the award, the Respondent assures that it will comply fully with the following nondiscrimination and equal opportunity provisions:

Title VI and VII of the Civil Rights Act of 1964, including the Nontraditional Employment Act for Women of 1991;
Section 504 of the Rehabilitation Act of 1973, as amended
The Age Discrimination Act of 1975, as amended;
All applicable regulations implementing those laws.

DRUG FREE WORKPLACE CERTIFICATION

The ____________________________________ (proposing organization) will provide a Drug Free Work Place in compliance with the Drug Free Work Place Act of 1988. The unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited on the premises of the ______________________________________ (proposing organization) or any of its facilities. Any employee who violates this prohibition will be subject to disciplinary action up to and including termination. All employees, as a condition of employment, will comply with this policy.

ATTEST TO Attachments of Certification

_______________________________ __________________________________
Signatory Authority Signature Collateral Signature

_______________________________ __________________________________
Typed Name Date

Subscribed and sworn to before me this _______day of ________________ (month), 2011 in

______________________(city), ____________(county), ___________(state).

________________________________ **SEAL**

Notary Public in and for ________________________(County),

State of _________________ Commission expires:_______________

3.10 HISTORICALLY UNDERUTILIZED BUSINESSES CERTIFICATION

Historically Underutilized Businesses (HUBs) are encouraged to participate in the RFP process. Representatives from HUB companies should identify themselves and submit a copy of their Certification.

NCTCOG recognizes the certifications of both the State of Texas HUB Program and the North Central Texas Regional Certification Agency. All companies seeking information concerning HUB certification are urged to contact.

State of Texas HUB Program
Texas Comptroller of Public Accounts
Post Office Box 13528, Capitol Station
Austin, Texas 78711-3528
(512) 463-5872

OR

North Central Texas
Regional Certification Agency
624 Six Flags Drive, #100
Arlington, TX 76011
(817) 640-0606

Proposer must include a copy of its HUB certification documentation as part of this RFP.

The North Central Texas Regional Wet Weather Characterization Plan Proposal for the Third Permit Term

I. History of the Regional Program

Since 1996, a regional storm water monitoring program has been on-going in the Dallas-Fort Worth (DFW) metropolitan area among the seven largest cities and major transportation agencies for compliance with Federal and State storm water permit requirements. During the initial permit term (1996 -2001), seven municipalities (Dallas, Fort Worth, Arlington, Irving, Garland, Plano and Mesquite) and two local districts of the Texas Department of Transportation (TxDOT) received joint approval from U.S. Environmental Protection Agency (EPA) for a regional monitoring program which utilized the assistance of a shared consultant team and the United States Geological Survey (USGS) to sample and analyze 22 outfalls primarily from small watersheds of a predominantly single land use type. Although these sample collections served to characterize typical urban runoff from these limited land use types, and were useful for estimating general pollutant loadings, they did little to evaluate impacts on actual receiving streams. In the next permit term, now administered by the Texas Commission on Environmental Quality (TCEQ), approval was obtained to utilize in-stream stations for the regional monitoring program to better assess this impact. The revised program was termed the Regional Wet Weather Characterization Program (RWWCP) and was added as an option in Part IV.A.3 of the Texas Pollutant Discharge Elimination System (TPDES) Municipal Separate Storm Sewer System (MS4) permits issued to the Phase I North Central Texas governmental entities. The primary goal of this new in-stream monitoring program was to obtain baseline data on receiving streams in the DFW Metroplex for use in determining long-term water quality trends. Since the RWWCP language existed outside of each permit, it allowed greater flexibility for making changes to the program. During this second permit term, the North Texas Tollway Authority (NTTA) joined the regional program. All other participants remained the same, except for the TxDOT-Fort Worth District who became a co-permittee with the cities of Fort Worth and Arlington and were no longer required to conduct wet weather monitoring. According to the original RWWCP protocol, municipal participants collected data from three sampling sites in the watershed (typically upstream, midstream and downstream) and the transportation agencies collected data from two sites (upstream and downstream stations only). Samples were collected quarterly from each site during a qualifying rain event and were analyzed for 18 parameters.

As an added component, the City of Fort Worth selected the Representative Rapid Bioassessment Monitoring Option (Part IV.A.2) in their permit, which allowed the chemical sampling frequency to be reduced from four times per year per site to once per year per site. In its place, two bioassessments were conducted each year at a minimum of nine sites. These bioassessments were based on protocols developed by the EPA. A summarization of this bioassessment data was included along with the chemical data in the annual regional monitoring report each year of the permit term.

II. Lessons Learned from the Most Recent Permit Term

At the end of the second permit term's sampling effort, a final summary monitoring report was prepared by the regional consultant, PBS&J, to assess the three-year sampling effort. The report found that in general, firm conclusions regarding the factors determining in-stream water quality could not be made due to the limited number of samples collected. Nevertheless, the report observed that all of the watersheds sampled had relatively consistent concentrations when compared to each other and that there was a general tendency of decreasing concentrations of parameters analyzed going from upstream to downstream. Constituent concentrations were found to be typically higher in warmer months as expected, but the length of antecedent dry period had surprisingly little influence on the in-stream water quality. Depending on parameter, the data was either higher or lower than national averages of storm water outfall data; however, it was generally higher overall relative to local ambient, dry weather data. This last finding is somewhat to be expected since storm events wash down the urban landscape and carry a higher load of pollutants than ambient conditions. As a result of these findings and a retrospective evaluation of the regional sampling program, PBS&J made the following recommendations for modifying the RWWCP in the next term:

Increase the number of sampling events per site - PBS&J suggested that either the frequency of monitoring during the year be increased or the same watershed be monitored for at least two years.

Refine sampling site selection process – This suggestion includes locating sites within impaired watersheds, focusing on impairment-causing pollutants, locating sites that foster long-term deployment, allowing for flow monitoring and minimizing vandalism.

Conduct more RBAs in other jurisdictions – Encourage more participating entities to include Rapid Bioassessments in the next permit term to gain a more thorough understanding of water quality impacts to urban receiving streams.

Revise monitored pollutants – The residential use of Diazinon was banned several years ago and has not been detected in any samples taken during this permit term. Therefore, PBS&J has recommended that Diazinon be replaced with Carbaryl, a commonly-used pesticide, for the next permit term. They also suggested that Cadmium be dropped from the parameter list since it was detected at very low levels and in less than 25 percent of the samples collected.

These recommendations were incorporated in this proposal for the next permit term.

III. Characterization of the Proposed Program

Proposed Plan for Third Permit Term

The primary goal of the monitoring program was to obtain baseline data on receiving streams in the DFW Metroplex for use in determining long-term water quality trends. This was generally achieved in the past permit term but final analysis indicated that more data is needed to establish actual trends. The Regional Storm Water Monitoring Partners of North Central Texas seek to continue documenting water quality improvements resulting from BMP effectiveness as they have over the past several years encompassing two permit terms. The regional partners would like to continue with the RWWCP because it has allowed for: 1) more coordinated and comprehensive water quality sampling; 2) more sound and reliable data collection; 3) greater cost effectiveness; and 4) a truer assessment of regional impact on stream water quality.

For this upcoming permit term, the Cities of Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite and Plano, together with the North Texas Tollway Authority and TxDOT-Dallas District have agreed to continue their regional partnership to work cooperatively through the North Central Texas Council of Governments to develop a revised RWWCP. Permit numbers and relevant dates for each participant are included in Table 1.

TABLE 1: LIST OF PERMITTEES

PERMITTEE	TPDES PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
City of Arlington	WQ0004635000	5/26/2006	5/26/2011
City of Dallas	WQ0004396000	7/27/2007	2/22/2011
City of Fort Worth	WQ0004350000	2/22/2006	2/22/2011
City of Garland	WQ0004682000	12/22/2005	12/22/2010
City of Irving	WQ0004691000	5/26/2006	5/26/2011
City of Mesquite	WQ0004641000	5/26/2006	5/26/2011
City of Plano	WQ0004775000	7/20/2007	7/20/2012
North Texas Tollway Authority	WQ0004400000	2/22/2006	2/22/2011
Texas Department of Transportation-Dallas	WQ0004521000	6/30/2006	6/30/2011

The municipal regional partners have created a new sampling plan that will effectively monitor at least 50% of their jurisdictional area by the end of the permit term. This extent of jurisdictional coverage will allow a reasonable assessment of jurisdictional watersheds while striving to achieve a balance among the various goals of obtaining valid scientific information, meeting permit compliance, and addressing what is practicable for each entity. As in the previous term, this plan proposes to continue in-stream watershed monitoring, but seeks to obtain greater statistical robustness of the data by increasing the sampling period at each location to a minimum of two years. The primary goal of the RWWCP during this permit term will be to continue the assessment of urban impact on receiving stream water quality and to document any improvement presumably resulting from local BMP implementation. The data collected during this permit term will build upon the set of regional data needed from each site for meaningful trend analysis.

This proposal also includes a more comprehensive biomonitoring component. Since assessing the impact of urban runoff on receiving stream quality is a primary focus of this program, assessing the biological integrity of the streams is fundamental. With this proposed plan, 24 watersheds will be chemically monitored and 12 watersheds will be bioassessed across the region, with substantial overlap between the two sampling approaches.

A map with each entity's selected watersheds is shown in Figure 1. Specific locations of sampling sites in each watershed will be determined prior to each sampling year and will be submitted in each prior year's annual regional monitoring report. Refer to Table 2a&b for identification of the watersheds selected by each entity and their relative proportion to jurisdictional area. The relative percent and the area of the selected watersheds are indicated with bold type. Unbolded watersheds indicate unselected, shared watersheds that were selected by other entities. Most of the municipal entities were able to achieve the 50% coverage with only two watersheds; however, due to the size of their jurisdictional area, the City of Dallas selected eight watersheds and the City of Fort Worth selected six to monitor. Jurisdictional coverage was not considered in the selection of the two transportation agency watersheds.

The North Central Texas Council of Governments (NCTCOG) role in the regional monitoring program is to coordinate the overall program, obtain consultant assistance on behalf of the regional partners, assist participants in site selection and the development of the sampling protocol(s); collect and summarize the data; and generate/deliver annual compliance reports.

Sampling Metrics

Monitoring is proposed to commence January 1 of the year following the issuance of the City of Garland's permit, anticipated in mid-2011. Given the existing staggered permit expiration dates among the participants, it is likely that permit renewals issued by TCEQ will also be staggered. Consequently, the regional program will need to have written endorsement from TCEQ that participants will receive credit for any monitoring they contribute as part of the regional effort that would be applied toward their eventual permit. However, by incorporating a lag period to maintain a calendar year-based schedule, most of the participating permittees will likely have their renewals issued by then (i.e. January 1, 2011), making for a smoother transition.

Table 3 provides a detailed breakdown of the number and frequency of each partner's proposed sampling activity(ies). Most entities are chemically sampling one watershed in their jurisdiction for two consecutive years and then moving to a second watershed for another two years. There are a few exceptions to this standard pattern:

- The City of Dallas will need to sample at least six watersheds in order to achieve the 50% coverage; This will be accomplished by chemically sampling four watersheds and performing bioassessment in four additional watersheds as a part of the regional program.
- To achieve the 50% area coverage, the City of Fort Worth needs to sample six watersheds. They intend to bioassess all six watersheds at two locations twice a year for all five years of the permit term. For chemical sampling, they intend to collect in-stream samples at two sites within two watersheds each year. By the end of the third year, they will have monitored each of their six selected watersheds once. They propose to then select the top four most biologically-impaired watersheds to continue with a second sample in the remaining two years of the permit term. Table 3 reflects this sampling pattern of four watersheds being sampled

twice and two watersheds being sampled once for a total of 20 chemical samples in the permit term.

- The City of Mesquite has a unique situation where there are only two watersheds in their jurisdiction and the two creeks of those watersheds are almost wholly contained within the city limits. They would prefer to establish permanent in-stream monitoring stations in each of the two creeks and to sample them concurrently all four years. Due to the relatively small size of the watersheds, they feel they can adequately assess the urban runoff impact by strategically locating a single sampling station in each watershed.

Chemical Sampling Details

Each participating entity will be responsible for final selection of sampling sites. Samples will be collected from these sites according to the schedule identified previously and analyzed for the parameters listed in the table below. Following consultant recommendations (see Section II Lessons Learned…), Diazinon has been replaced with Carbaryl, and Cadmium has been dropped from the parameter list.

Entities may use in-house staff or a consultant of their choice for sample collection. Although we encourage the use of a common laboratory for analysis to ensure consistency, entities may also select the TCEQ-approved laboratory of their choice, as long as procedures are followed and data quality objectives are met as specified in the approved regional monitoring protocol (to be finalized prior to the first sampling year).

Table 4: List of Parameters	
Parameter	**Method of Collection**
Oil & Grease	Grab
pH	Grab
E. coli	Grab
Total Coliforms	Grab
Total Dissolved Solids (TDS)	Composite
Total Suspended Solids (TSS)	Composite
Biochemical Oxygen Demand (BOD_5)	Composite
Chemical Oxygen Demand (COD)	Composite
Total Nitrogen	Composite
Dissolved Phosphorus	Composite
Total Phosphorus	Composite
Carbaryl	Composite
Total Arsenic	Composite
Total Chromium	Composite
Total Copper	Composite
Total Lead	Composite
Total Zinc	Composite

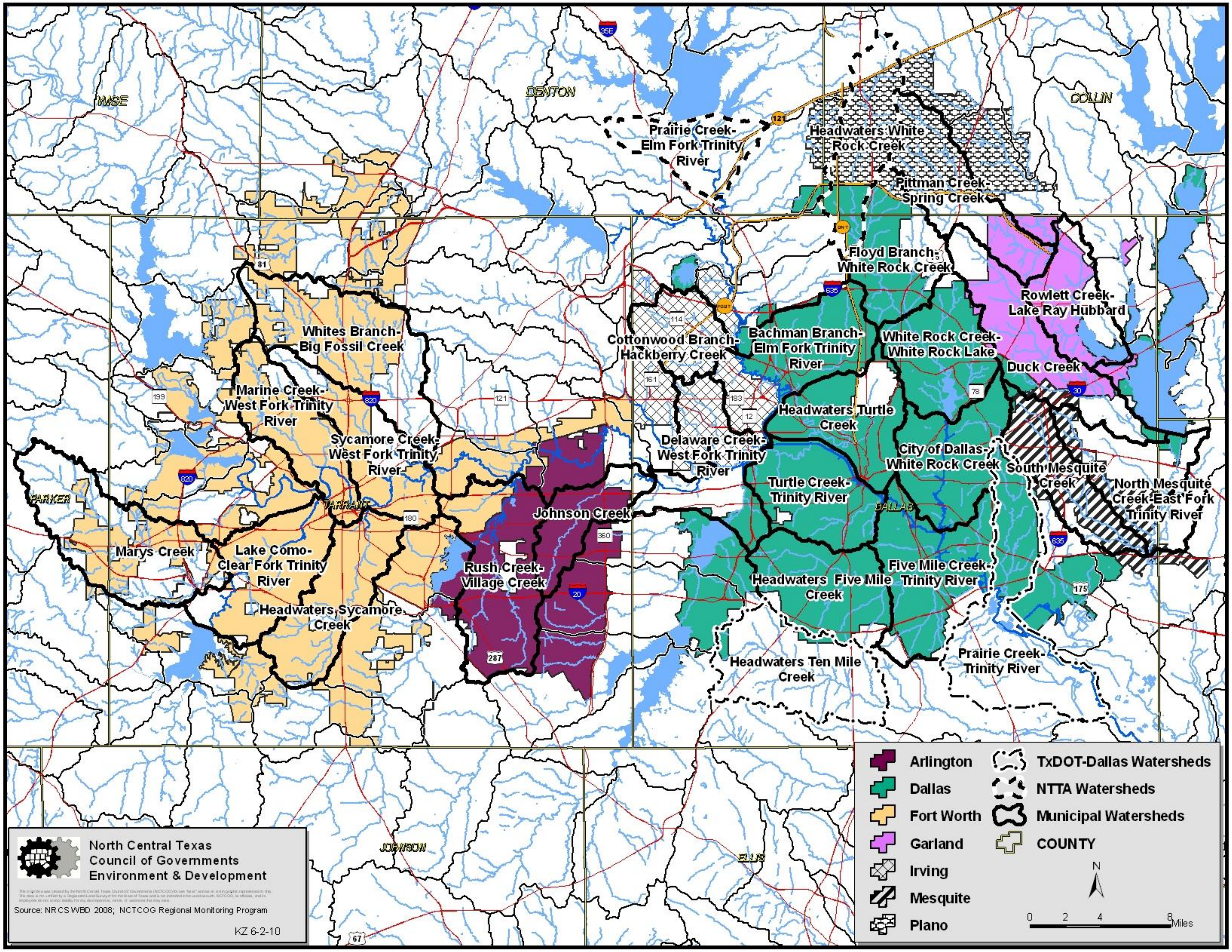

Figure 1: Regional Monitoring Entities & Selected HUC-12 Subwatersheds for Third Term Monitoring

Table 2a: RWWCP Watersheds Selected for Third Permit Term Monitoring

Area of City Sq mi. ⟶		Arlington 98.57		Dallas 385.92		Fort Worth 344.67		Garland 57.16		Irving 67.88		Mesquite 46.36		Plano 72.25	
HUC-12 Watersheds	*	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**
Johnson Creek	C	**17.61%**	**17.36**												
Rush Creek-Village Creek	C	**35.51%**	**35.01**												
Bachman Branch-Elm Fork Trinity River	B			**7.98%**	**30.79**					16.16%	10.97				
City of Dallas-White Rock Creek	C			**9.00%**	**34.75**							0.27%	0.13		
Five Mile Creek-Trinity River	C			**10.79%**	**41.66**										
Floyd Branch-White Rock Creek	B			5.5%	21.3									**3.1%**	2.2
Headwaters Five Mile Creek	B			**9.00%**	**34.74**										
Headwaters Turtle Creek	C			**7.4%**	**28.4**										
Turtle Creek-Trinity River	C			**8.94%**	**34.5**										
White Rock Creek-White Rock Lake	B			**8.73%**	**33.7**			1.46%	0.83						
Headwaters Sycamore Creek	BC					**10.22%**	**35.22**								
Lake Como-Clear Fork Trinity River	BC					**9.79%**	**33.74**								
Marine Creek-West Fork Trinity River	BC					**8.58%**	**29.56**								
Mary's Creek	BC					**6.29%**	**21.69**								
Sycamore Creek-West Fork Trinity River	BC					**6.77%**	**23.32**								
Whites Branch-Big Fossil Creek	BC					**9.73%**	**33.52**								
Duck Creek	BC			0.92%	3.56			**42.19%**	**24.11**			5.75%	2.67		
Rowlett Creek-Lake Ray Hubbard	BC			0.63%	2.42			**29.92%**	**17.1**						
Cottonwood Branch-Hackberry Creek	C			0.04%	0.15					**29.90%**	**20.29**				
Delaware Creek-West Fork Trinity River	C			1.53%	5.91					**22.16%**	**15.04**				
North Mesquite Creek-East Fork Trinity River	C			0.39%	1.5							**26.82%**	**12.43**		
South Mesquite Creek	C			0.22%	0.85							**54.27%**	**25.16**		
Pittman Creek-Spring Creek	BC							16.04%	9.17					**25.42%**	**18.37**
Headwaters White Rock Creek	BC			1.66%	6.42									**26.2%**	**18.93**
Totals of selected (bolded) watersheds ⟶		**53.12%**	**52.37**	**67.34%**	**259.84**	**53.76%**	**185.24**	**72.11%**	**41.21**	**52.06%**	**35.33**	**81.09%**	**37.59**	**51.62%**	**37.3**

*** (C) – Chemical (B) – Bioassessment (BC) – Both Bioassessment & Chemical**

"HUC12 Sq. Mi" indicates the area of the watershed within the jurisdictional boundary

Table 2b: RWWCP Watersheds Selected for Third Permit Term Monitoring
Transportation Agencies

Area of City Sq mi. ⟶	*	**Arlington 98.57**		**Dallas 385.92**		**Fort Worth 344.67**		**Garland 57.16**		**Irving 67.88**		**Mesquite 46.36**		**Plano 72.25**	
HUC-12 Watersheds		**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**	**% of City**	**HUC12 Sq. Mi.**
TxDOT- Dallas Selected Watersheds															
Headwaters Ten Mile Creek	C			**0.7%**	2.5										
Prairie Creek-Trinity River	C			**4.7%**	18.0							**1.6%**	0.7		
NTTA Selected Watersheds															
Headwaters White Rock Creek	C			1.66%	6.42									**26.2%**	**18.93**
Prairie Creek-Elm Fork Trinity River	C														
Totals of all watersheds (in this table only) ⟶				**7.06%**	26.92							**1.6%**	0.7	**26.2%**	**18.93**

Table 3: Sampling Metrics

	Chemical Sampling									Bioassessment Sampling				
	Annual				Permit Term					Annual			Permit Term	
Entity	Sampling Sites per Watershed A	Number of Watersheds Sampled B	Frequency of Sampling C	Total Annual Samples D (A×B×C)	Number of Years Sampling E	Total Samples For Permit Term F (D×E)	Number of Watersheds Sampled G	Number of Samples Taken in Each Watershed H (F÷G)	Number of Samples Per Site I (H÷A)	Sites Per Watershed Per Year J	Frequency of Sampling K	Watersheds Per Year L	Number of Years Sampling M	Total Samples N (J×K×L×M)
Arlington	3	1	4	12	4	48	2	24	8	-	-	-	-	-
Dallas	3	2	4	24	4	96	4	24	8	1	2	4	4	32
Fort Worth	2	2	1	4	4 and 1	16 + 4	4 and 2	4 + 2	2 and 1	2	2	6	5	120
Garland	3	1	4	12	4	48	2	24	8	1	2	1	4	8
Irving	3	1	4	12	4	48	2	24	8	-	-	-	-	-
Mesquite	1	2	4	8	4	32	2	16	8	-	-	-	-	-
Plano	2	1	4	8	4	32	2	16	8	1	2	1	4	8
NTTA	2	1	4	8	4	32	2	16	8	-	-	-	-	-
TxDOT-Dallas	2	1	4	8	4	32	2	16	8	-	-	-	-	-

Grab samples will be collected during the first flush and analyzed for *E. coli*, total coliforms, oil and grease, and pH. An additional first flush sample and four subsequent samples collected at equal time intervals will be taken over the first two hours of the event and combined for a composite sample. Samples will be collected for no more than two hours, regardless of storm duration. The grab samples can be obtained either manually or from some type of automated collection device to better address safety concerns. Sampling will be conducted only on qualifying events which are defined as satisfying the following requirements: 1) Antecedent dry period of 72 hours minimum; 2) Rainfall volume of 0.10 inch minimum; and a 3) Quantifiable increase in water surface elevation attributable to storm water runoff. Rain gauges will be deployed in each watershed to support assessment of local wet weather conditions.

Bioassessments

The recent National Research Council (NRC) report *Urban Stormwater Management in the United States* recommends including bioassessments for assessing storm water management program progress. It also recommends that storm water management strategies should address all stressors to a stream which can be accomplished through biological monitoring since biota naturally integrate the environmental conditions that impact them. TCEQ has continued the option established by EPA in the MS4 permit language of allowing bioassessments to be used as a replacement for a portion of the chemical monitoring requirement. The RWWCP has always had a bioassessment component as part of its overall approach and the partners would like to continue including it. In fact, this proposal suggests a greater use of bioassessments across the region than ever before.

Both EPA and TCEQ have developed an array of methods and approaches that can be used in conducting bioassessments. Each of these regulatory entities has developed manuals outlining these various steps. As EPA states in their manual, Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, 2nd Ed. (1999) the protocols described are not "intended to be used as a rigid protocol without regional modifications. Instead, they provide options for agencies or groups that wish to implement rapid biological assessment and monitoring techniques."

As such, the regional program participants that are implementing bioassessments (Dallas, Fort Worth, Garland and Plano) will be performing bioassessment based upon standardized protocols as set forth in applicable EPA and TCEQ manuals. These protocols will be detailed in each annual report but generally involve habitat assessment, a measurement of standard field physical conditions, and collection and identification of macroinvertebrates and possibly other biota. Watershed parameters will be compared to a baseline standard to determine the habitat's health, through use of a reference site or other methods. The number of watersheds being sampled, stations per watershed and samples per year using bioassessment protocols are all listed in Table 3.

IV. Summary of the RWWCP Proposal for the Third Permit Term

In summary:

- Each participant has selected watersheds to achieve greater than 50% coverage of their jurisdictional area.
- To increase statistical robustness, most watersheds will be sampled for a minimum of two years.
- Most watersheds will be sampled quarterly; Fort Worth is putting a greater effort into the bioassessment sampling instead.
- The number of sites per watershed varies per entity based on local conditions.
- Arlington, Dallas, Garland, Irving, Mesquite, Plano, NTTA and TxDOT-Dallas will collect samples for the first four years of the five-year permit term.
- Fort Worth has elected to perform chemical monitoring for the entire five-year permit term.
- 17 chemical parameters will be analyzed in each storm event sample
- Dallas, Fort Worth, Garland and Plano will also do biological assessments.

NCTCOG
ATTACHMENT B - PART A FIELD COLLECTION AND ANALYSIS OF STORM WATER SAMPLES

COST SUMMARY

		Level of Effort				
	Task	**Hours**	**Personnel Costs**	**Laboratory Costs**	**Other Direct Expenses**	**Total**
A. Project Management & Coordination						$ -
B. SAPP/QAPP						$ -
C. Field Sampling and Analyses						$ -
ARL	Johnson Creek					$ -
	Rush Creek					$ -
DAL	City of Dallas White Rock Creek					$ -
	Five Mile Creek - Trinity River					$ -
	Headwaters Turtle Creek					$ -
	Turtle Creek - Trinity River					$ -
GAR	Duck Creek					$ -
	Rowlett Creek - Lake Ray Hubbard					$ -
IRV	Cottonwood Branch - Hackberry Creek					$ -
	Delaware Creek - West Fork Trinity River					$ -
MES	North Mesquite Creek - East Fork Trinity River					$ -
	South Mesquite Creek					$ -
PLN	Pittman Creek - Spring Creek					$ -
	Headwaters White Rock Creek					$ -
TxDOT	Headwaters Ten Mile Creek					$ -
	Prairie Creek					$ -
NTTA	Headwaters White Rock Creek					$ -
	Prairie Creek - Elm Fork Trinity River					$ -
D. Annual Report (Four Permit Years)						$ -
	Compile Data					$ -
	Draft Report					$ -
	Final Report					$ -
E. Electronic Data Monitoring Report (Four Permit Years)						$ -
	Data QA/QC					$ -
	Draft for Participant Review					$ -
	Submit to TCEQ					$ -
F. Final Summary Report (End of Permit Term)						$ -
	Compile Data					$ -
	Draft Report					$ -
	Final Report					$ -
	TOTAL	**0**	**$ -**	**$ -**	**$ -**	**$ -**

	Unit Cost Per Sample Location					

ARL - City of Arlington
DAL - City of Dallas
GAR - City of Garland

IRV - City of Irving
MES - City of Mesquite
PLN - City of Plano

TxDOT - Texas Department of Transportation

NTTA - North Texas Tollway Authority

NCTCOG
ATTACHMENT C - PART B - BIOMONITORING SAMPLING AND ANALYSES

COST SUMMARY

	Task	***Level of Effort***				
		Hours	**Personnel Costs**	**Laboratory Costs**	**Other Direct Expenses**	**Total**
	A. Project Management & Coordination					$ -
	B. SAPP/QAPP					$ -
	C. Field Sampling and Analyses					$ -
DAL	Bachman Branch - Elm Fork Trinity River					$ -
	Floyd Branch - White Rock Creek					$ -
	Headwaters Five Mile Creek					$ -
	White Rock Creek - White Rock Lake					
GAR	Duck Creek					$ -
	Rowlett Creek - Lake Ray Hubbard					$ -
PLN	Pittman Creek - Spring Creek					$ -
	Headwaters White Rock Creek					$ -
	D. Annual Report (Four Permit Years)					$ -
	Compile Data					$ -
	Draft Report					$ -
	Final Report					$ -
	E. Electronic Data Monitoring Report (Four Permit Years)					$ -
	Data QA/QC					$ -
	Draft for Participant Review					$ -
	Submit to TCEQ					$ -
	F. Final Report (End of Permit Term)					$ -
	Compile Data					$ -
	Draft Report					$ -
	Final Report					$ -
	TOTAL	**0**	**$ -**	**$ -**	**$ -**	**$ -**

	Unit Cost Per Sample Location					

DAL - City of Dallas
GAR - City of Garland
PLN - City of Plano

Appendix B:

Monitoring Program and Quality Assurance Project Plan for Wet Weather Characterization Equipment Deployment and Sampling Protocol: 2018-2022

Regional Wet Weather Characterization Program, Permit Term Four

Monitoring Program and Quality Assurance Project Plan for Wet Weather Equipment Deployment and Sampling Protocol: 2018–2021

Prepared for:

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Texas Board of Professional Engineers
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May 1, 2018

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Acronyms and Abbreviations

BMP	Best Management Practice
CDMA	code division multiple access
DFW	Dallas-Fort Worth
EDD	electronic data deliverable
EPA	Environmental Protection Agency
FSO	Field Sampling Organization
LCD	liquid crystal display
MS4	Municipal Separate Storm Sewer System
NBS	National Bureau of Standards
NCTCOG	North Central Texas Council of Governments
NTTA	North Texas Tollway Authority
NWSWFO	National Weather Service Weather Forecast Office
PPE	personal protective equipment
QA	quality assurance
QAPP	Quality Assurance Project Plan
RWWCP	Regional Wet Weather Characterization Program
QC	quality control
TMDL	Total Maximum Daily Load
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollutant Discharge Elimination System
TxDOT	Texas Department of Transportation
USGS	U.S. Geological Survey
UTC	Coordinated Universal Time

1.0 Introduction

1.1 Background

Since 1996, a regional storm water monitoring program has been ongoing in the Dallas-Fort Worth (DFW) metropolitan area among the seven largest cities and major transportation agencies for compliance with Federal and State storm water permit requirements. During the initial permit term (1996–2001), seven municipalities (Dallas, Fort Worth, Arlington, Irving, Garland, Plano and Mesquite) and the Dallas and Fort Worth Districts of the Texas Department of Transportation (TxDOT) received joint approval from U.S. Environmental Protection Agency (EPA) for a regional monitoring program which utilized the assistance of a shared consultant team and the United States Geological Survey (USGS) to sample and analyze 22 outfalls primarily from small watersheds of a predominantly single land use type. The Participants listed above worked through the North Central Texas Council of Governments (NCTCOG) to form a regional partnership and strategy to conduct wet-weather monitoring activities for the regional monitoring program.

The sample collections served to characterize typical urban runoff from limited land use types, and were useful for estimating general pollutant loadings. However, they did not directly evaluate impacts on actual receiving streams.

1.1.1 Second Permit Term

In the second permit term (2005–2010), the permit was administered by the Texas Commission on Environmental Quality (TCEQ) and implemented through NCTCOG and a consultant team led by Atkins. Approval was obtained to utilize in-stream stations for the regional monitoring program to more directly assess the impact of storm water within receiving streams. The revised program was termed the Regional Wet Weather Characterization Program (RWWCP) and was added as an option in Part IV.A.3 of the Texas Pollutant Discharge Elimination System (TPDES) Municipal Separate Storm Sewer System (MS4) permits issued to the Phase I North Central Texas governmental entities. The primary goal of the in-stream monitoring program was to obtain baseline data on receiving streams in the DFW Metroplex for use in determining long-term water quality trends. Since the RWWCP language existed outside of each permit, it allowed greater flexibility for making changes to the program. During this second permit term, the North Texas Tollway Authority (NTTA) joined the regional program. All other participants remained the same, except for the TxDOT-Fort Worth District who became a co-permittee with the cities of Fort Worth and Arlington and were no longer required to conduct wet weather monitoring. According to the original RWWCP protocol, municipal Participants collected data from three sampling sites in the watershed (typically upstream, midstream and downstream) and the transportation agencies collected data from two sites (upstream and downstream stations only). Samples were collected quarterly from each site during a qualifying rain event and were analyzed for 18 parameters.

As an added component, the City of Fort Worth selected the Representative Rapid Bioassessment Monitoring Option (Part IV.A.2) in their permit, which allowed the chemical sampling frequency to be reduced from four times per year per site to once per year per site. In its place, two bioassessments were conducted each year at a minimum of nine sites. These bioassessments were based on protocols developed by the EPA. A summarization of this bioassessment data was included along with the chemical data in the annual regional monitoring report each year of the permit term.

1.1.2 Third Permit Term

In the third permit term (2011–2016), the Cities of Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite and Plano, together with the North Texas Tollway Authority and TxDOT-Dallas District agreed to continue their regional partnership and work cooperatively through the NCTCOG and Atkins to develop a revised RWWCP. This revised plan effectively monitored at least 50% of each entity's jurisdictional area by the end of the permit term. This extension of jurisdictional coverage allowed a reasonable assessment of each entity's jurisdictional watersheds while also achieving a balance among the various goals of obtaining valid scientific information, meeting permit compliance, and addressing what is practicable for each entity. The primary goal of the RWWCP during this permit term was to continue the assessment of urban impact on receiving stream water quality and to document any improvement presumably resulting from local BMP implementation. The data collected during this permit term built upon the set of regional water quality data collected under the previous term needed for meaningful trend analysis. Since assessing the impact of urban runoff on receiving stream quality is a primary focus of this program, assessing the biological integrity of the streams was deemed fundamental in the third term. During the third term, 24 watersheds were chemically monitored and 12 watersheds were bioassessed across the region, with substantial overlap between the two sampling approaches.

At the end of the third permit term's sampling effort, a final summary report was prepared by Atkins to assess the sampling effort. The report found that in more than half of the watersheds sampled had high bacteria exceedances, with the average number of nine exceedances in these watersheds. Stream degradation was noted by Atkins' monitoring team in about half of the sampled watersheds based on the data analyzed, and additional monitoring was recommended at these sites.

The report analyzed each of the monitored watersheds, and looked at characteristics specific to each watershed. This approach provided more usable information for each entity, and each individual watershed's information can be reviewed and used to implement BMPs and other monitoring practices in the future. Many of the watersheds that were studied in the third term were classified as high priorities to be studied again due to the data was collected during the third term. The watersheds that were classified as high priority were generally those with stream degradation, those with high number of exceedances of criteria of monitored parameters, and those with existing TMDLs.

Taking into account each watershed's characteristics and evaluating the RWWCP as a whole, Atkins made various recommendations for modifying the RWWCP in the next term, including the following that were applied to the proposal:

- Focus on Impaired Waterbodies –This suggestion is supported by TCEQ and EPA feedback provided to NCTCOG and the monitoring Participants. Atkins suggests a focus on monitoring impaired water bodies will also help with TMDL efforts already underway in the area.
- Rapid bio-assessment improvements – Rapid bio-assessments should continue to be part of the RWWCP, and entities that are not currently completing RBAs should be encouraged to do so. Atkins recommends that the parameters that are recorded during bio-assessment chemical monitoring activities be expanded to include/match those of the wet weather monitoring to allow for easier comparison.

- Revise monitored pollutants: Pesticides and Herbicides – During the third permit term, Carbaryl was chosen to replace Diazaon that was undetected in the second permit term. Carbaryl was not detected in any watershed during the third permit term, and therefore was recommended that it no longer be monitored for the fourth permit term. Suggestions for replacement are dieldrin or atrazine.
- Revise monitored pollutants: indicator bacteria – Remove total coliforms from list of monitoring parameters. There is no recognized correlation between total coliforms and fresh water pathogens by TCEQ or EPA.
- Revise monitored pollutants: nutrients – Add ammonia nitrogen, nitrate nitrogen, and ortho-phosphate to the monitoring parameters for wet weather chemical monitoring. These additions would allow for better comparisons between bioassessment and wet weather chemical monitoring results.
- Revise monitored pollutants: metals – For the Duck Creek, Johnson Creek, and White Rock Creek (headwaters) subwatersheds, it is recommended that sampling of dissolved fractions of metals is conducted in order to determine the concentration of bioavailable metals.

Many of these recommendations were incorporated in the proposal for the fourth permit term.

1.1.3 Current (Fourth) Permit Term

For the current permit term (2018 to 2022), the cities of Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, and Plano and the NTTA agreed to continue their regional partnership to work cooperatively through the NCTCOG to develop a revised regional monitoring program. TxDOT obtained a statewide permit incorporating both the Dallas and Fort Worth Districts, which removed the requirement to conduct wet weather monitoring. The revised regional monitoring program, which was approved by the TCEQ in 2017, incorporates the recommendations from the previous program outlined above.

The municipal regional Participants proposed to continue to use a sampling plan that will effectively monitor at least 50% of their jurisdictional area by the end of the permit term. As in the previous term, in-stream watershed monitoring will be continued to obtain greater statistical robustness of the data by increasing the sampling at each location for a minimum of two years. The Participants will maintain fixed sampling stations to the extent practicable. This will enable the data to be examined for trends and show improvements or decline in water quality within the fixed sampling period.

Watersheds that will be monitored were prioritized based on TMDLs and 303d streams which were in watersheds that cover the jurisdictional area of the municipalities. Participants proposed to monitor in these impaired waterbodies in order to better assess the impacts of storm water on these impaired streams. It is primarily the same area monitored during the previous permit terms with some additional watersheds.

In October 2017, a consultant team led by Atkins and including subconsultants Freese and Nichols, Inc. and Dougherty Sprague Environmental, Inc. was reselected to continue providing regional storm water monitoring services. Atkins will perform a variety of storm water monitoring compliance activities for the Cities of Arlington, Garland, Irving, Mesquite, and Plano, along with NTTA including storm water monitoring, bioassessments, and a BMP Analysis and Evaluation Plan. The bioassessment monitoring plan and BMP Analysis and Evaluation Plan will be provided in separate submittals. This document defines procedures for storm water sampling, sampling equipment and deployment, field trip preparation, sample retrieval, laboratory analysis, and post-sampling activities. Dallas and Fort Worth are part of the approved regional monitoring plan; however, this document is specific to the storm water monitoring activities for the Cities of Arlington, Garland, Irving, Mesquite, Plano, and NTTA.

1.2 Purpose of this Document

The purpose of this document is to fulfill the TPDES permit requirement held by the Cities of Arlington, Garland, Irving, Mesquite, Plano, and NTTA, and to provide instructions for the NCTCOG consulting staff on storm water sampling, sampling equipment and deployment, field trip preparation, sample retrieval, laboratory analysis, and post-sampling activities for the current permit term (2018 through 2022). This document will allow storm water monitoring to be conducted in an effective, consistent, and efficient manner. Results obtained from the monitoring described in this document will be submitted to the NCTCOG to meet compliance obligations for the TPDES permit holders. Data collected under this protocol will be used to assess wet weather in-stream conditions.

1.3 Organization of Document

The remainder of this document includes separate sections addressing different aspects of the monitoring protocol for the project.

Section 2.0 – Roles and Responsibilities: Describes the roles and responsibilities of all project participants.

Section 3.0 – Site Information: Provides information about the site locations and precipitation and hydrologic information.

Section 4.0 – Sampling Equipment: Provides an overview of the sampling equipment and programming requirements, including automatic sampler deployment and equipment protection procedures.

Section 5.0 – Sampling Strategy and Collection Procedures: Describes field trip preparation, mobilization, sample retrieval procedures, monitoring constituents, and quality assurance (QA)/quality control (QC) field samples to be obtained.

Section 6.0 – Sample Handling and Documentation: Describes information regarding chain-of-custody requirements and containers and preservatives.

Section 7.0 – Precipitation Monitoring: Describes the precipitation monitoring approach, including equipment, locations, maintenance, calibration, and data management.

Section 8.0 – Flow and Pollutant Load Estimations: Describes the methodology to be used to calculate flows and pollutant loads.

Section 9.0 – Laboratory Analysis: Provides laboratory sample preparation and data reports information.

Section 10.0 – Quality Assurance Project Plan: Outlines the required field and laboratory quality assurance procedures to be used.

Section 11.0 – Post-Sampling Activities: Discusses equipment maintenance, data management and retrieval, and redeployment of equipment.

Section 12.0 – Health and Safety: Addresses the health and safety of field sampling staff, including personal protective equipment and anticipated hazards, and provides emergency contact information.

Section 13.0 – References: Includes a list of references used to prepare this document.

2.0 Roles and Responsibilities

The names and responsibilities of the organizations involved in the orchestration and implementation of the regional storm water monitoring program are described in this section.

2.1 Monitoring Organization

The NCTCOG represents several municipalities in the Greater Dallas-Fort Worth Metroplex. Participating municipalities in this monitoring plan include the Cities of Arlington, Garland, Irving, Mesquite, and Plano, and the roadway authority of NTTA.

2.2 Monitoring Plan Developer

The monitoring plan was developed by Atkins. During the development of the monitoring plan, the plan developer is responsible for:

- Making updates and revisions to the monitoring plan according to *"The North Central Texas Regional Wet Weather Characterization Plan Proposal for the Fourth Permit Term"* (NCTCOG, 2017) and comments requested by the monitoring organization.
- Reviewing monitoring results and assisting the monitoring organization in implementing the monitoring plan.
- Assisting NCTCOG in coordinating the storm water activities of all involved organizations.

2.3 Field Sampling Organization

The Field Sampling Organization (FSO) will be Atkins, assisted by subconsultants Freese and Nichols, Inc. and Dougherty Sprague Environmental, Inc. The FSO will be responsible for executing the storm water monitoring activities as defined in this monitoring plan. Activities include monitoring equipment installation, maintenance, and calibration; sample collection; preparing the required reports; conducting the required equipment maintenance; validation tasks; QA tasks; and data reporting activities. The FSO will:

- Coordinate monitoring activities with participants on equipment delivery and pickup.
- Contract and coordinate with the analytical laboratory, contractors, and subconsultants necessary for implementation of the monitoring plan.
- Provide needed logistical support to field sampling crews, establish a communication network, and schedule and coordinate monitoring activities.
- Oversee or conduct field monitoring activities in accordance with the approved monitoring plan/ quality assurance project plan (QAPP).
- Prepare and maintain all field records and QA/QC forms.
- Receive, review, manage, and validate all laboratory reports.
- Prepare and submit all collected data to NCTCOG in accordance with protocol requirements and enter into the regional program monitoring database.

- Store hard copies.
- Assist in the review of annual reports.

2.4 Analytical Laboratory

The laboratory will be responsible for conducting QA tasks, laboratory analysis of samples, and reporting in accordance with the Sections 5.4, 6.0, 9.0, and 10.0 of the monitoring plan. The laboratory will also:

- Review monitoring plan/QAPP.
- Verify that all samples delivered to the laboratories meet applicable QA requirements listed in approved QAPP.
- Process and prepare composite and grab samples for analyses of the monitoring constituents listed in Section 5.4 of this monitoring plan.
- Analyze collected samples according to the methods listed in Section 5.4 of this monitoring plan.
- Conduct all necessary QA testing according to Section 10.0 of this monitoring plan.
- Report test results and QA data to the FSO according to Section 9.0 of this monitoring plan.

2.5 Communications Protocol

Communications within Atkins and between the subcontractors will be conducted by the Project and Task Managers or designated personnel. Managers and appropriate subcontractor staff will be copied on scope or policy issues along with day-to-day messages regarding the weather.

Communications to and from NCTCOG and the sampling teams will be conducted through Derica Peters of NCTCOG (or delegate) and Chad Richards (Atkins) for regional monitoring-related items, including sampling activities and laboratory results. Designated staff will be copied on scope and policy issues.

Sampling personnel may be divided into multiple field teams and office leaders if necessary. Each field team will consist of one field team leader and one field assistant. The office leader will remain in communication with the field team leaders and liaise between the field teams and the laboratory. The office leader will remain aware of potential weather and traffic concerns and alert the field teams as needed.

3.0 Site Information

This section describes the monitoring site locations that have been chosen for storm water monitoring during the calendar years of 2018–2021.

3.1 Site Locations

The watershed maps and deployment locations are provided in Appendix A.

3.2 Precipitation and Hydrology Information

All sites are located within the Dallas-Fort Worth Metroplex, which is approximately 250 miles north of the Gulf of Mexico. The climate is a mix of subtropical with humid, hot summers, and continental with wide ranges in annual temperature extremes. Rain occurs in the winter months associated with Pacific and Arctic cold fronts and in the summer months with thunderstorm activity. Rainfall occurs most frequently at night, with the highest amounts falling during the months of May and October (National Weather Service Weather Forecast Office [NWSWFO], 2011).

Rainfall records (1981–2010 data from NWSWFO, 2011) from the atmospheric monitoring station located at the Dallas-Fort Worth International Airport report a normal annual rainfall amount of 36.14 inches. Figure 3-1 shows each month with its corresponding normal rainfall volume.

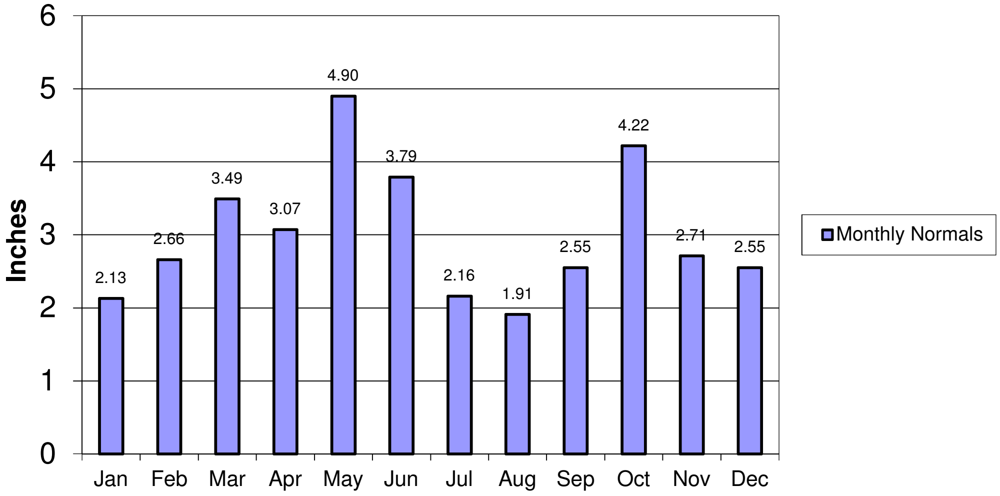


Figure 3-1 Monthly Distribution of Normal Rainfall Patterns (NWSWFO, 2011)

3.3 2018–2019 Monitoring Stations

The following are the monitoring station locations for each entity and the associated watersheds.

Arlington – Johnson Creek and Fish Creek – Mountain Creek Lake

- Johnson Creek at Six Flags (AR1801/1901)
- Fish Creek at SH 360 (AR1802/1902)

Garland – Duck Creek

- Duck Creek at Shiloh Bridge (GA1801/1901)
- Duck Creek between Forest North and South (GA1802/1902)
- Duck Creek under La Prada Bridge (GA1803/1903)

Irving – Delaware Creek

- Delaware Creek at Sowers Road (IR1801/1901)
- Delaware Creek at Oakdale (IR1802)

Mesquite – South Mesquite Creek and North Mesquite Creek

- North of New Market Road (MS1801)
- North Mesquite Creek at Edward's Church (MS1802)

Plano – Spring Creek

- Spring Creek at 16th Street (PL1801)

NTTA – Cottonwood Branch – Hackberry Creek and Cottonwood Creek – Mountain Creek Lake

- Unnamed Tributary at SH 161 North of Gateway Drive (NT1801)
- Cottonwood Creek at SH 161 South of Dickey Road (NT1802)

Maps and photos of the sites may be found in Appendix A. The equipment located at each station is discussed in detail in Section 4.0.

3.4 2020–2021 Monitoring Stations

This subsection will be finalized prior to the monitoring activities of 2020.

4.0 Sampling Equipment

This section presents an overview of the sampling equipment and deployment.

4.1 Overview of Equipment

Storm water monitoring equipment to be utilized at the sites includes:

- ISCO 6712 Automatic Sampler and Suction Line
- ISCO 730 Bubbler Flow Module and Bubbler Line
- ISCO CDMA Cellular Phone System
- ISCO 674 Rain Gauge (upstream sites only)

The storm water sampling will be conducted using an ISCO 6712 automatic sampler. The automatic sampler uses a battery-powered peristaltic pump to draw water through a strainer and flexible sample tube. The storm water sample will be collected using four 1-gallon glass containers located within the automatic sampler housing. Sampling will be triggered by a quantifiable increase in water surface elevation within the stream conveyance channel within a one-hour window. A 730 Bubbler Flow Module will be attached to a tube connected to the automatic sampler to monitor the water level increase. A computer processor with LCD display will allow programming of sampler functions, such as collection intervals and sample volumes, and additional data recording. A CDMA Cellular Phone System will be used on one sampler within the designated watershed to notify field crews that the sampling routine has been initiated. The cellular phone system is used only as an option to alert staff. A deep-cycle marine battery will provide power to the automatic sampler and related equipment. At applicable sites where a clear view of the sky is available, solar panels may be installed to provide a trickle charge to the deep-cycle marine battery. Vendor literature is provided in Appendix B.

Data from the ISCO 674 Rain Gauge, 6712 automatic sampler, and 730 Bubbler Flow Module will be downloaded during sample collection and reported with the laboratory data or, during dry periods, downloaded on a monthly basis by the FSO.

4.2 Automatic Sampler Deployment

4.2.1 Pump and Sample Bottle Housing

The automatic sampler will be located on a stable and flat surface within a storm water sample shelter. The equipment will be securely fastened by a steel cable to a solid object, such as a tree or earth anchor, to prevent removal by high flood events or vandals. The equipment will be located downstream of the solid object and the chain will have no slack. The automatic sampler and battery will be anchored suitably so that they are not tipped over by wind or water.

4.2.2 Suction Line

The automatic sampler will be located outside the conveyance and above the normal water surface elevation. The sampler pumps typically can provide about 25 to 28 vertical feet of suction lift. Placing the sampler higher will cause lower velocities than the 2 feet per second needed to collect representative samples, especially when considering solids content. Excessive elevation lift can also cause sampling to fail. Placing the sampler at longer horizontal distances will result in large friction losses along the sampler tube.

Where possible, the strainer or suction line intake will be located near the center of a straight length of channel. Soils, vegetation, and debris present in earthen channels can clog the collection tube intake. The suction line intake must not be clogged by debris and the suction line must not be displaced. To achieve this, the intake will be securely fastened above the streambed with the open end of the intake pointing downstream. The intake may be fastened to a steel stake or reinforcing bar driven into the center of the stream channel or attached to the side of the channel. Wire, cable ties, or hose clamps will be used to fasten the intake to the steel stake or sides of the channel. The tubing will not be crimped and vertical loops that can trap water in the tubing will be avoided.

4.2.3 Bubbler Module and Tubing

The 730 Bubbler Module uses a differential pressure transducer and a flow of bubbles to measure liquid levels up to 10 feet. The bubbler is unaffected by wind, fluctuations in air or liquid temperatures, turbulence, foam on the surface, corrosive chemicals, debris, oil, floating grease, or lightning. The bubbler tube will be secured similar to the suction line intake. Wire, cable ties, or hose clamps will be used to fasten the bubbler tubing to the steel stake. The tubing will not be crimped.

The bubbler module will be calibrated by measuring the depth of water and adjusting the reading to match as described in the vendor manual. The bubbler line will be routed and secured so that it does not disturb the flow. The mounting hardware will not be over-tightened to avoid kinking the tubing or restricting the airflow.

4.2.4 Sample Jar Installation and Securing

Sample jars will be set in the wire basket located in the bottom of the automatic sampler housing and positioned so the jar locations correspond to the numbers designated for collection. The wire retainer frame will be placed over the four jars and secured in place with the bungee cords located in the bottom of the automatic sampler housing.

4.2.5 Programming

The automatic sampler will be programmed to collect sample aliquots during storm events when the 730 Bubbler Module detects a quantifiable increase in water surface elevation (for example, 1-inch rise) within the stream conveyance channel within one hour. The automatic sampler will be programmed with three different activity modes: Disabled, Enabled, and Shut Down.

The automatic sampler will begin in "Disabled" mode. When the bubbler module detects a quantifiable rise in the stream channel within a one-hour window, the automatic sampler will switch from "Disabled" to "Enabled" mode. The sampler will perform a sample tube-cleaning routine consisting of an air purge followed by a tubing rinse. The sampler will then fill the first of the four 1-gallon glass containers located within the housing of the automatic sampler, which is considered time "0" in the programming sequence. The automatic sampler will collect an additional 0.5-gallon aliquot in the second 1-gallon glass container at time "0"; 0.5-gallon aliquots will be collected every 30 minutes after the sampler was enabled at time "0" up to 120 minutes.

The sampler will continue to take aliquots until 120 minutes has passed from the start of sample collection. Afterwards, the automatic sampler will "Shut Down." At the end of the programming sequence, aliquots will have been collected at 0 minutes, 30 minutes, 60 minutes, 90 minutes, and 120 minutes. Sample container one, or the grab sample container, will contain one 1-gallon aliquot, sample containers two and three will contain two 0.5-gallon aliquots, and sample container four will contain one 0.5-gallon aliquot.

Figures 4-1 through 4-4 provide a flow chart for programming of the samplers with 1 inch (as an example) used as the quantifiable rise to trigger the sample.

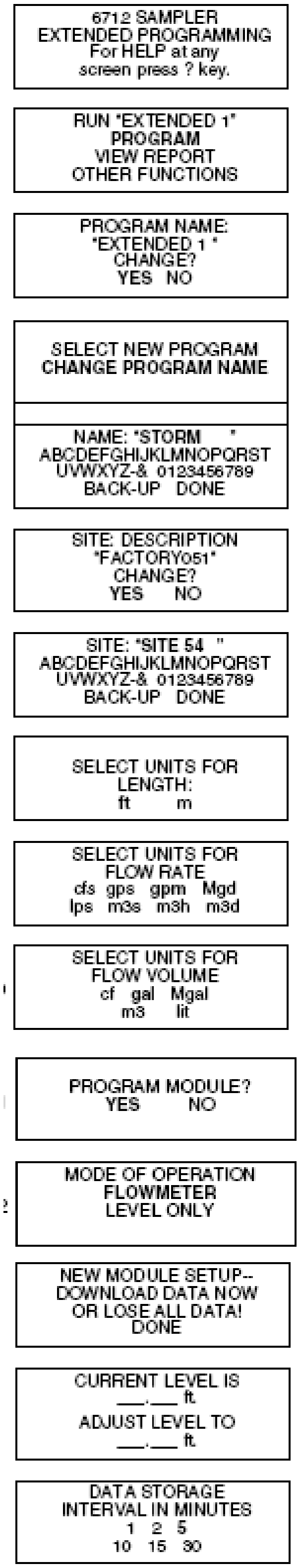
The most upstream site in each watershed will be equipped with an ISCO 674 Rain Gauge and CDMA Cellular Phone System. When the automatic sampler becomes "Enabled," an alarm will be sent to the FSO that the sampler has started sample collection activities.

4.2.6 Calibration and Testing

The automatic samplers will be calibrated and tested upon deployment. Sample volumes, depth measurements, and sampler programming will be verified. Volume calibration is described in Section 4.12 of the Teledyne ISCO 6712 Portable Samplers Installation and Operations Guide (Teledyne Isco, 2016). Calibration of the 730 Bubbler Module is described in the Teledyne ISCO 730 Bubbler Module Installation and Operations Guide (Teledyne Isco, 2013). These guides can be downloaded from www.isco.com.

4.2.7 Equipment Protection

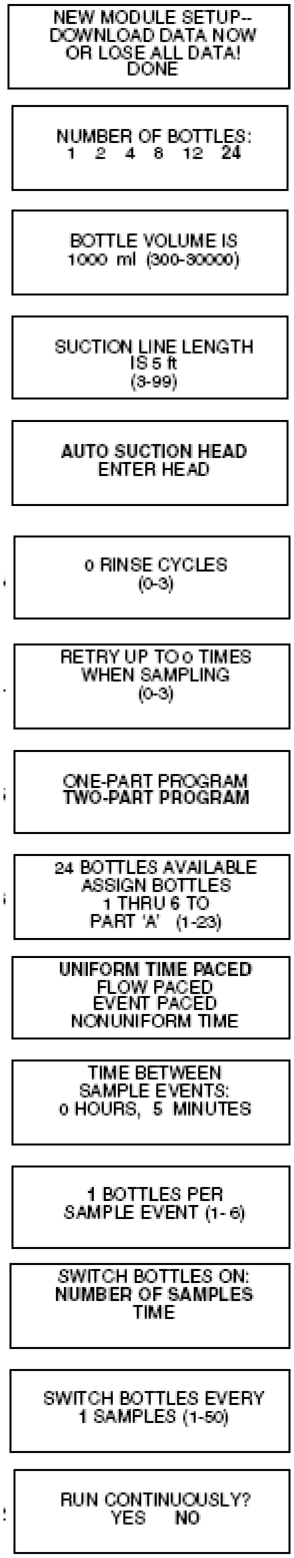
Failure of the automatic sampler can occur from power failure, programming error, flood damage, theft, vandalism, or environmental conditions. Every effort will be taken to prevent failure and to protect the automatic sampler. Sufficient input will be obtained from ISCO technicians to reduce incidences of failure due to programming errors. The automatic sampler and battery will be hidden from view, secured with locks and cables, and enclosed in a shelter to reduce the possibility of theft or vandalism.



6712 SAMPLER EXTENDED PROGRAMMING For HELP at any screen press ? key.	This will appear briefly
RUN "EXTENDED 1" PROGRAM VIEW REPORT OTHER FUNCTIONS	Select PROGRAM
PROGRAM NAME: "EXTENDED 1 " CHANGE? YES NO	Select YES
SELECT NEW PROGRAM CHANGE PROGRAM NAME	Select CHANGE PROGRAM NAME
NAME: "STORM " ABCDEFGHIJKLMNOPQRST UVWXYZ-& 0123456789 BACK-UP DONE	Enter an appropriate program name
SITE: DESCRIPTION "FACTORY051" CHANGE? YES NO	Select YES
SITE: "SITE 54 " ABCDEFGHIJKLMNOPQRST UVWXYZ-& 0123456789 BACK-UP DONE	Enter the appropriate site name
SELECT UNITS FOR LENGTH: ft m	Select ft
SELECT UNITS FOR FLOW RATE cfs gps gpm Mgd lps m3s m3h m3d	Select gpm
SELECT UNITS FOR FLOW VOLUME cf gal Mgal m3 lit	Select gal
PROGRAM MODULE? YES NO	Select YES
MODE OF OPERATION FLOWMETER LEVEL ONLY	Select LEVEL ONLY
NEW MODULE SETUP-- DOWNLOAD DATA NOW OR LOSE ALL DATA! DONE	Select DONE
CURRENT LEVEL IS __.__ ft. ADJUST LEVEL TO __.__ ft.	Key in the current level and press Enter
DATA STORAGE INTERVAL IN MINUTES 1 2 5 10 15 30	Select 5

Figure 4-1

Automatic Sampler Programming Flowchart Part 1



NEW MODULE SETUP-- DOWNLOAD DATA NOW OR LOSE ALL DATA! DONE	Select Done
NUMBER OF BOTTLES: 1 2 4 8 12 24	Select 4
BOTTLE VOLUME IS 1000 ml (300-30000)	Enter 3700
SUCTION LINE LENGTH IS 5 ft (3-99)	Enter length of suction line
AUTO SUCTION HEAD ENTER HEAD	Select AUTO SUCTION HEAD
0 RINSE CYCLES (0-3)	Enter 1
RETRY UP TO 0 TIMES WHEN SAMPLING (0-3)	Enter 3
ONE-PART PROGRAM TWO-PART PROGRAM	Select TWO-PART PROGRAM
24 BOTTLES AVAILABLE ASSIGN BOTTLES 1 THRU 6 TO PART 'A' (1-23)	Enter 1 (Screen will say "Beginning Part A")
UNIFORM TIME PACED FLOW PACED EVENT PACED NONUNIFORM TIME	Select UNIFORM TIME PACED
TIME BETWEEN SAMPLE EVENTS: 0 HOURS, 5 MINUTES	Enter 0 for HOURS and 5 for MINUTES
1 BOTTLES PER SAMPLE EVENT (1- 6)	Enter 1
SWITCH BOTTLES ON: NUMBER OF SAMPLES TIME	Select NUMBER OF SAMPLES
SWITCH BOTTLES EVERY 1 SAMPLES (1-50)	Enter 1
RUN CONTINUOUSLY? YES NO	Select NO

Figure 4-2
Automatic Sampler Programming Flowchart Part 2

DO YOU WANT SAMPLE VOLUMES DEPENDENT ON FLOW? YES NO	Select NO
SAMPLE VOLUME 200 ml (10-1000)	Enter 3700
ENABLE: RAIN LEVEL FLOW NONE	Select LEVEL
ENABLE: RAIN AND OR DONE	Select DONE
"LEVEL" CONDITION: SET POINT RANGE RATE OF CHANGE	Select RATE OF CHANGE
CONDITION IS TRUE WHEN "LEVEL" RISES FALLS	Select RISES
"LEVEL" RISES 1.000 ft __HOURS, __MINUTES	Enter 0.086 ft and 1 HOURS, 0 MINUTES
ONCE ENABLED, STAY ENABLED? YES NO	Select YES
SAMPLE AT ENABLE? YES NO	Select YES
PAUSE RESUME 1. HH:MM DD HH:MM DD 2. HH:MM DD HH:MM DD CLEAR DONE	Select DONE (Screen will say "Beginning Part B")
UNIFORM TIME PACED FLOW PACED EVENT PACED NONUNIFORM TIME	Select NONUNIFORM TIME
NONUNIFORM TIME: CLOCK TIMES INTERVALS IN MINUTES RANDOM INTERVALS	Select INTERVALS IN MINUTES
FIRST SAMPLE AT START TIME, THEN . . .	Press Enter
QUANTITY AT INTERVAL 1. __ AT __ MIN 2. __ AT __ MIN 3. __ AT __ MIN	**Enter 4 at 30 MIN; 1 at 9999 MIN; and 0 for interval 3**
1 BOTTLES PER SAMPLE EVENT (1- 18)	Enter **1**

Figure 4-3
Automatic Sampler Programming Flowchart Part 3

SWITCH BOTTLES ON: NUMBER OF SAMPLES TIME	Select NUMBER OF SAMPLES
SWITCH BOTTLES EVERY 1 SAMPLES (1- 50)	Enter 2 **(It may ask you this after the next step depending on the programming set-up)**
RUN CONTINUOUSLY? YES NO	**Select NO (We want 3 bottles per event and 2 samples per bottles)**
SAMPLE VOLUME: 200 ml (10-1000)	Enter 1850
ENABLE: RAIN LEVEL FLOW NONE	**Select 'A' DONE**
ENABLE: RAIN AND OR DONE	Select DONE
ONCE ENABLED, STAY ENABLED? YES NO	Select YES
SAMPLE AT ENABLE? YES NO	Select YES
PAUSE RESUME 1. HH:MM DD HH:MM DD 2. HH:MM DD HH:MM DD CLEAR DONE	Select DONE
NO DELAY TO START DELAYED START CLOCK TIME WAIT FOR PHONE CALL	Select NO DELAY TO START
PROGRAMMING COMPLETE RUN THIS PROGRAM NOW? YES NO	Select YES

Figure 4-4

Automatic Sampler Programming Flowchart Part 4

5.0 Sampling Strategy and Collection Procedures

This section describes the strategies and procedures for collecting storm water samples.

5.1 Field Trip Preparation

The following procedures (as a minimum) will be followed to ensure successful field data collection at each of the 21 sampling locations selected for calendar years 2018–2021. At all times, the FSO will observe all the safety features and protocols described in Section 12.0 to ensure a safe field campaign.

5.1.1 Weather Monitoring

Current and forecasted weather will be monitored on a continuous basis to better anticipate field sampling collection events. Larger rainfall events result in increases in water surface elevations at downstream sites.

The depth of rainfall in the previous 24-hour period can be obtained by visiting the website http://www.intellicast.com. Go to "Current" and "Precipitation," and select the map titled "Daily." Click on the Dallas-Fort Worth area (OK-Lawton Region) on the map to obtain a contour map of precipitation depth for the Dallas-Fort Worth Metroplex for the previous 24 hours. The precipitation depth is from 1200 hours Coordinated Universal Time (UTC) of the previous day to 1200 hours UTC of the current day.

Current weather forecasts can be obtained from National Weather Service website (http://www.weather.gov/) by entering the city name or zip code.

5.1.2 Storm Event Requirements

A qualifying storm event is defined as one that satisfies the following requirements:

1. Rainfall Volume: 0.10 inch, minimum
2. Antecedent Dry Period: 72 hours, minimum
3. Stream Level: Quantifiable rise within 1 hour

Rainfall volume is the total amount of rainfall in inches within the contributing watershed of a monitoring station. The "antecedent dry period" is defined as the period prior to a storm event in which no greater than 0.10 inch of rainfall has occurred. This dry period allows build-up of constituents on the ground surface that can be washed off by the next storm event during the "first flush." The quantifiable rise in stream level within a one-hour time span will be determined by visual observation, level sensors (i.e., bubbler module), stream gauges, or other methods of determining water level. The grab sample and the first composite aliquot will be collected during the "first flush," which is defined as the 30-minute period following a quantifiable rise in the stream level.

5.2 Mobilization

The details of when the field mobilization should occur and safety issues are discussed in this section. For full details on safety precautions, consult Section 12.0.

5.2.1 When to Mobilize

Field mobilization will occur when: (1) there is rainfall at the sampler deployment location, and (2) the water level increases by a quantifiable amount at the conveyance. This information is recorded by the bubbler module and can be obtained by querying the automatic sampler unit through the cell phone modem. If an automatic sampler does not have cell phone query capability, the mobilization will be initiated based on notification from another sampler within the particular watershed where the sampler is currently located, a nearby Internet rain gauge, or weather bands tracked on radar from the Internet.

Field mobilization will be conducted 24 hours a day, on weekdays or during holidays and weekends, unless prior arrangements with NCTCOG have been made.

5.2.2 Team Assembly

The office leader may assemble multiple teams in one day. Each field team will consist of two people for safety, the field team leader and the field assistant. Field personnel will gather necessary equipment, checklists, and logbooks and travel to the site when mobilization has been authorized. Field personnel will print out the required checklists for each sampling site they are expected to visit, as well as several additional forms. These forms may be found in Appendix C. Field personnel will attempt to arrive as soon as the storm event starts in the event the sampler is not working correctly.

5.2.3 Equipment Assembly

Field personnel will go through the mobilization checklist (Appendix C) for all the equipment needed for the field trip, making sure that equipment (including the vehicles) is in good working condition and that there is sufficient gas for the field trip.

5.2.4 Equipment

The following equipment will be gathered for the collection of the storm water samples:

- Maps
- Site description and driving directions to each site
- Checklists and data forms
- Calibrated pH/temperature/specific conductivity meter
- Digital photo capturing device
- Writing instruments (pens and sharpies)
- Rain gear
- Rubberized boots
- Flashlight
- Cell phone
- Picture identification, insurance information, and contact information of office colleagues

- Water and ice for field staff (optional)
- Chain-of-custody forms (Appendix D)
- Lab sample transfer ice chest and bubble wrap
- Jumbo zip-lock freezer bags
- Ice for samples
- Extra sample containers, lids, and deep cycle battery
- Keys for shelter locks and gates, where applicable

5.2.5 Laboratory Notification

The FSO office leader will notify the laboratory of the mobilization effort and provide them with the expected number of samples.

5.2.6 Tailgate Safety Meeting

A tailgate safety meeting will be conducted prior to every monitoring event to review the anticipated site hazards. All meeting information will be placed into the project file.

5.3 Sample Retrieval

Immediately after the occurrence of a qualified sampling event, samples will be retrieved from the sampling sites. This section describes procedures upon arrival at the sampling site, including sample collection from the automatic sampler, field documentation, sampler dismantling, and transport of water samples to the laboratory for analysis.

5.3.1 Vehicle Parking and Safety

The storm water monitoring sites will be readily accessible from existing state or city street rights-of-way. FSO field personnel will not park in private driveways or on private property.

For detailed parking and safety instructions, see Section 12.0. The FSO will park the truck in such a manner as to avoid being stuck in soft off-road soils. The sampling vehicle will be locked during the sampling activities.

5.3.2 Right of Entry

FSO field personnel will carry a laminated authorization letter from NCTCOG.

5.3.3 Automatic Sampler

At each site, FSO field personnel will check the automatic sampler to verify that it is enabled and is actively taking samples. The automatic sampler contains four 1-gallon glass sample containers. The automatic sampler will fill the first sample container with 1 gallon of water immediately when triggered and also immediately place in the subsequent container a 0.5-gallon aliquot. The sampler will continue to take

0.5-gallon aliquots every 30 minutes after the initial sample for 120 minutes. The automatic sampler display will notify field personnel that sampling is complete. At the end of the programming sequence, aliquots will have been collected at 0 minutes, 30 minutes, 60 minutes, 90 minutes, and 120 minutes, for a total of three full jars and one half jar. Sample container one, or the grab sample container, will contain one 1-gallon aliquot, sample containers two and three will contain two 0.5-gallon aliquots, and sample container four will contain one 0.5-gallon aliquot. When the collection is completed, sample containers one, two, and three will each contain 1 gallon, and sample container four will contain 0.5 gallon.

Field Documentation

FSO field personnel will be responsible for documenting site conditions using the Field Condition and Sample Station checklists provided in Appendix C. The following information should be included:

- Site Details
    - Participant
    - Location
    - Name of receiving water body
- Field Conditions
    - Antecedent dry period
    - Visible construction activities observed near the site (if applicable)
- Current Field Conditions
    - Date
    - Time begin and finish sample collection activities
    - Current air temperature
    - Current cloud condition
- Precipitation Data
    - Event ID (user-provided name for the precipitation event)
    - Monitoring station for event (rain station used to gather precipitation data)
    - Storm description
    - Duration (start date and time – end date and time)
    - Total storm precipitation
    - Peak 1-hour precipitation rate
- Storm Event Collection Data
    - Flow start time (time at the beginning of the flow event, typically the time preceding a quantifiable rise in the stream depth in response to a rain event)

  - Flow end time (time at the end of a flow event, typically the time when the recession limb of the hydrograph is <2 percent of the peak or is within 10 percent of the pre-storm base flow, whichever is greater, but also may be the time preceding the next rain event from which water quality samples were not collected)
  - Peak depth (maximum depth measurement in feet obtained between the flow start time and flow end time)
  - Mean depth (the average of the depth measurements obtained between the flow start time and flow end time)

- Sample Documentation at Each Sampling Station
  - Chain-of-custody (Appendix D)
  - Sample identification number for composite sample
  - Description of the sample characteristics (e.g., turbid, clear, oil sheen)
  - Estimated water volume in sample containers
  - Number of total aliquots
  - Time first aliquot sample collected
  - Time last aliquot sample collected
- Collection of Field QA Samples
  - Sample identification number and sample type of field QA samples collected

5.3.4 Storm Water Sample Collection

The storm water samples will be collected from within the automatic sampler enclosure by removing the top half of the ISCO unit. The sample containers will be capped and removed.

Each sample bottle will be uniquely identified, labeled, and documented in the field at the time of collection. Samples will be identified with a unique series of letters and numbers that indicate the location and date that the sample was collected. The following labeling system will be used:

> **The first two characters** will indicate the participant for which the sample was collected. "AR" will be used for Arlington sites, "GA" will be used for Garland sites, "IR" will be used for Irving sites, "MS" will be used for Mesquite sites, "NT" will be used for the NTTA sites, and "PL" will be used for the Plano sites.
>
> **The next four digits** will indicate the site number and associated calendar year in which it was sampled. The first two digits will indicate the year that the sample was collected. An example for 2018 would be "18." This is followed by the site location in regard to where it is located in the watershed. All sites upstream will start with "01," mid-stream sites will be characterized as "02," and downstream "03." For example, the downstream site in Garland sampled in calendar year 2018 will be labeled "GA-1803."

The next digit will indicate the sampling season during which the sample was collected. "1" will be used for January 1 through March 31, "2" will be used for April 1 through June 30, "3" will be used for July 1 through September 30, and "4" will be used for October 1 through December 31.

The last digit will indicate the sample bottle number. "A" will be the first grab sample container, and "B" will represent bottle 2, "C" will represent bottle 3, and "D" will represent bottle 4.

To summarize, the code GA-1802-1-B would identify the second bottle container collected during the January 1 through March 31 season at the midstream station from Garland's 2018 watershed.

5.3.5 Equipment Malfunction

In the event that the automatic equipment malfunctions, a sample may be collected manually by obtaining grab samples from the stream into the four clean 1-gallon glass sample containers. Field personnel should fill the first sample container with 1 gallon of water immediately following storm flow and also immediately obtain a 0.5-gallon grab sample aliquot in the subsequent container. Field personnel should continue to take 0.5-gallon grab sample aliquots every 30 minutes after the initial sample for 120 minutes. At the end of the sampling sequence, aliquots will have been collected at 0 minutes, 30 minutes, 60 minutes, 90 minutes, and 120 minutes, for a total of three full jars and one half jar. Sample container one, or the grab sample container, will contain one 1-gallon aliquot, sample containers two and three will contain two 0.5-gallon aliquots, and sample container four will contain one 0.5-gallon aliquot. When the collection is completed, sample containers one, two, and three will each contain 1 gallon, and sample container four will contain 0.5 gallon. The grab samples will be collected using a pre-cleaned bucket that will be triple rinsed with the water to be sampled or distilled water between each sample collection. Field personnel should also note approximate water levels in a field logbook during the sampling sequence.

5.3.6 Missed and Unusable Samples

If a sample is determined to be missed or unusable for purposes of submittal to the State, the FSO will conduct a re-sampling effort. If inadequate time or insufficient rainfall occurs during the remaining permit term, a letter will be provided to NCTCOG by the FSO (and potentially the laboratory) explaining the cause of the missed sample. An additional sample will be collected during the next quarter.

5.3.7 Sampler Dismantling

The automatic sampler will be dismantled along with the battery and removed to the truck. The enclosures will remain at the sites until the last quarterly samples are collected.

5.3.8 Sample Transport

Following the collection of water samples from each site, the FSO field personnel will call the office leader at the earliest opportunity to report the sample collection status. This information will be relayed to the laboratory. FSO field personnel will transport the water quality samples preserved in ice to maintain a temperature of 4ºC to the laboratory.

5.4 Monitoring Constituents

Table 5-1 lists the constituents to be monitored and analyzed in this project.

Table 5-1 Constituents to be Monitored

Constituent	Analysis Location	Method	Detection Limit	Holding Time
E coli	Laboratory	SM9223B	10 colonies/100 mL	6 hours
Oil and grease	Laboratory	EPA 1664A	1.7 ppm	28 days
pH	Field	Probe	-	Immediately
Temperature	Field	Probe	-	Immediately
Specific Conductance	Field	Probe	-	Immediately
Biochemical Oxygen Demand (BOD)	Laboratory	SM5210B	3 ppm	48 hours
Chemical Oxygen Demand (COD)	Laboratory	SM5220D	1 ppm	28 days
Total suspended solids (TSS)	Laboratory	SM2540D	2 ppm	7 days
Total Dissolved Solids (TDS)	Laboratory	SM2540C	5 ppm	7 days
Total arsenic	Laboratory	EPA 200.7	0.0005 ppm	6 months
Total chromium	Laboratory	EPA 200.7	0.003 ppm	6 months
Total copper	Laboratory	EPA 200.7	0.002 ppm	6 months
Total lead	Laboratory	EPA 200.7	0.0005 ppm	6 months
Total zinc	Laboratory	EPA 200.7	0.005 ppm	6 months
Dissolved phosphorus	Laboratory	EPA 200.7	0.005 ppm	48 hours
Orthophosphate	Laboratory	EPA 300	0.03 ppm	48 hours
Total phosphorus	Laboratory	EPA 200.7	0.05 ppm	6 months
Ammonia Nitrogen	Laboratory	SM4500NH3B	0.05 ppm	28 days
Total nitrogen	Laboratory	SM4500-N	0.05 ppm	28 days
Nitrate Nitrogen	Laboratory	EPA 300	0.03 ppm	48 hours
Atrazine	Laboratory	EPA 619	0.0005 ppm	7 days

5.5 QA/QC Field Samples

FSO personnel will collect QA/QC samples on 10 percent of the samples collected. QA/QC checks will include the following:

Field Duplicates – Consists of obtaining a second analytical result for a scheduled sample. Duplicate results will be analyzed to monitor intra-laboratory precision of data. The laboratory will obtain duplicates from the composite containers of the auto-samplers by sub-sampling the composite volume remaining after the initial sub-sampling. The composite containers will need a minimum volume of 2½ gallons in order to collect and analyze duplicate samples. TTI Laboratories will be responsible for receiving, labeling, analyzing, documenting, and reporting these duplicates from the composite sample containers noted by FSO field staff.

Trip Blanks – Consists of de-ionized water that is carried with the FSO staff during sample collection in sample containers. They will be collected to evaluate if cross-contamination occurs during sample transport.

1-Gallon Composite Bottle Blanks – Composite container blanks will be collected by pouring de-ionized water into laboratory-cleaned 1-gallon containers. This liquid will then be sub-sampled into laboratory containers for analysis. This will test the effectiveness of decontamination procedures used by the laboratory to clean reused 1-gallon containers. FSO field staff will document the identification number of the container blank collected.

QA/QC field sample types, locations, collection schedule, and container requirements are listed in Table 5-2.

Table 5-2 QA/QC Field Sample Collection

Type	Collection Schedule	Container
Field Duplicates	10% of qualified sampling events	From composite and grab containers when volume allows
Trip Blanks	10% of qualified sampling events	1-gallon glass
Bottle Blanks	10% of qualified sampling events	1-gallon glass

The FSO will label and note the identification number of all QA/QC samples collected and the type of QA/QC samples collected.

QA/QC samples will be identified with an extension placed at the end of the sample ID. "FD" will be used to identify field duplicates, "TB" will be used to identify trip blanks, and "BB" will be used to identify bottle blanks.

6.0 Sample Handling and Documentation

This section describes the manner in which samples will be handled and tracked from the time of sample collection/retrieval to laboratory analysis.

6.1 Containers and Preservatives

All composite and grab samples will be extracted by the laboratory into sub-samples for various constituent analyses or as duplicate samples. The laboratory will place sub-samples into containers meeting the requirements of the analytical method to be performed. Additional preservatives will be added by the laboratory if required by the specific analytical method. Sample preservation is to prolong the stability of the constituents and ensure that the levels of constituents in the collected samples match as closely as possible the levels in storm water at the sample location.

6.2 Chain-of-Custody

A chain-of-custody document must accompany each sample. Samples must be under the custody of field personnel until relinquished to a representative of the laboratory. A sample is defined as being under a person's custody if any of the following conditions exist: (1) it is in their possession, (2) it is in their view after being in their possession, (3) it was in their possession and they locked it up, or (4) it is in a designated secure area.

After the samples have arrived at the laboratory, they should remain under the custody of the laboratory.

Each person receiving or relinquishing custody of the samples must sign and date the chain-of-custody when transfer of sample custody occurs. Documentation of sample possession must include the following:

- Sample description/identification
- Date and time of sample collection
- Type of sample (composite or grab)
- Preservative used
- Sample container type
- Analyses required
- Name of collector(s)
- Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory
- Bill of lading or transporter tracking number (if applicable)

Preformatted chain-of-custody forms should be used to document the transfer of samples to the laboratory and the analysis to be conducted on each bottle. A sample chain-of-custody is provided in Appendix D.

7.0 Precipitation Monitoring

This section describes the manner in which precipitation amounts at the project sites will be monitored and recorded.

7.1 Rain Gauges

Tipping bucket rain gauges will be used at one site per watershed to monitor and record rainfall measurements. The tipping bucket rain gauges will be located at the most upstream sampling station within each watershed. On-line rain gauges will be used for the remainder of the sites.

7.1.1 Rain Gauge Description

The tipping bucket rain gauge to be installed at one site per watershed will provide accurate rainfall measurements from 0.01 to 22 inches per hour. The rain gauge will be mounted inside a steel cylinder and have an opening on top to collect rain. Rain falls through a screen into a funnel. From the funnel, rain collects in one side of a two-chambered plastic bucket mounted on jeweled pivots. When rain fills the chamber, the bucket tips, draining the water and exposing the other chamber to fill. When that chamber fills, the bucket tips back and the process begins anew. Each time the bucket tips from one side to the other a magnet passes over a reed switch, momentarily closing the normally open contacts. This contact closure provides a short-duration output pulse from the rain gauge for each 0.01 inch of rain. Vendor literature on the ISCO 674 rain gauge is provided in Appendix B.

7.1.2 Data Retrieval

The ISCO rain gauges will be compatible with the data logging equipment so that FSO field personnel will be able to monitor rainfall measurements and easily download recorded data during each site/sampling visit or at a minimum of once monthly. The rain gauge will connect to the data logger at each station and the data logger will store rainfall measurements. Data will be extracted from the data logger by the FSO while on-site. Data will be cleared from the data logger after it has been extracted by a prompt from the FSO.

7.1.3 Rain Gauge Maintenance

All connections from the ISCO rain gauge to the data logger should be inspected to ensure that the connections are secure. FSO field personnel should remove the rain gauge cover at least quarterly and check to see that dust, bird excrement, insect matter, or other debris has not affected the operation of the gauge. If debris is observed, the gauge should be cleaned in accordance with the vendor's recommended practices.

7.1.4 Rain Gauge Calibration

All rain gauges are factory-calibrated and adjusted. FSO personnel should not attempt to make adjustments to the jeweled pivot screws of the ISCO rain gauge as the jewel bearings may be damaged. If calibration is necessary, the equipment vendor will be contacted.

8.0 Flow and Pollutant Load Estimates

The annual pollutant loading from each watershed will be estimated for the parameters monitored during runoff events using the following equations:

Conventional Parameters:

Annual Pollutant Loading (lb) = Estimated Mean Annual Pollutant Concentration (mg/L) x 2.2046 x 10^{-6} (conversion factor) x Estimated Annual Flow Volume (L)

Bacteria:

Annual Pollutant Loading (billion colonies) = Estimated Mean Annual Pollutant Concentration (colonies/100 mL) x 1.0 x 10^{-8} (conversion factor) x Estimated Annual Flow Volume (L)

The Estimated Mean Annual Pollutant Concentration will be calculated by taking the average of the pollutant concentrations collected through in-stream storm water monitoring within each watershed per year.

The annual flow volume will be estimated using the annual precipitation and annual flow equations developed for each watershed. Sample annual flow equations are provided in Appendix E and will be updated, if necessary, prior to estimating the annual pollutant loading for the annual report. The annual precipitation will be estimated for each watershed by utilizing rain gauges located both at the monitoring site and nearby locations, where available.

The annual flow equations were developed using four methods. The first method is referred to as Reference Watershed and utilizes the regional frequency analysis approach (through U.S. Geological Survey [USGS] data obtained from nearby reference watersheds) to predict mean annual discharge using drainage area, slope, and imperviousness as definable basin characteristics. The second method is referred to as Historical Regression and utilizes mean annual discharge data from a USGS historical gage and nearby precipitation data to develop a regression equation to forecast mean annual discharge based upon precipitation amounts. The third method is referred to as Interpolation and utilizes USGS gages upstream and/or downstream of the location of interest to interpolate data collected from the gage. The fourth method is referred to as Gaged and utilizes a USGS gage located at the sampling location.

The annual load estimates for each of the parameters monitored will be calculated for the annual report. The annual load calculation as described above is based on the assumption that the dry weather portion of the annual flow volume is insignificant and that the pollutant concentrations observed during the storm events are representative of storm events occurring throughout the year.

9.0 Laboratory Analysis

9.1 Laboratory Sample Preparation

TTI Environmental Laboratory (http://www.ttilabs.com/) in Arlington [(817) 861-5322] will be alerted that weather conditions exist that may require collection of samples. This will be accomplished as soon as field crews are aware of the potential for rain so that the laboratory can prepare for receipt and analysis of samples. After sample collection, the laboratory will be informed that samples are being transported to the laboratory to allow them to have someone receive the samples for adding preservatives and to begin necessary analyses within specified holding times.

9.2 Lost or Inadequate Samples

The laboratory will notify the FSO and the FSO will notify NCTCOG immediately if a sample is lost or is determined to be inadequate according to the communication protocol specified in Section 2.5. The FSO will conduct a re-sampling effort for lost or inadequate samples according to Section 5.3.5.

9.3 Data Reports

The laboratory will submit data reports. Laboratory data reports will contain final results for blanks and recoveries, methods of analysis, detection limits, quantification levels, accuracy and precision data, MS/MSD data, laboratory method and equipment blank data, and limits of instrument calibration. In addition, special analytical problems or modifications of specified methods will be noted.

The number of significant figures reported will be consistent with the limits of uncertainty inherent in the analytical method. Consequently, most analytical results will contain no more than two significant figures. Concentrations in liquids will be expressed in terms of weight per unit volume (e.g., milligrams per liter). Reported detection limits will equal the concentration in the original matrix corresponding to the low-level instrument calibration standard after accounting for concentration, dilution, and/or extraction factors.

The laboratory will also provide:

- Hard copies of chains of custody
- Hard copies of sample receipt and log-in data
- Hard copies of analytical results
- Hard copies of quality control data
- Hard copies of narrative reports for each analytical batch that describe deviations from specifications in this scope of work and summarize QC data

10.0 Quality Assurance Project Plan

To achieve the overall monitoring objectives, data obtained during each sampling event must be accurate and precise. Additionally, samples potentially contaminated by external sources in the field or laboratory must be identified. This section defines QA procedures and requirements for the project.

10.1 Field Quality Assurance

Field QA is essential to providing accurate, representative samples of the water quality being monitored. Thus, it is important that field personnel be trained in proper sample collection procedures, including the use and programming of automatic samplers and sample handling procedures. FSO personnel collecting field samples will follow all field procedures outlined in Section 5.0.

10.2 Laboratory Quality Assurance

The FSO will utilize TTI Laboratories to analyze samples collected. The laboratory will certify the precision and accuracy of all analytical data and document all phases of sample handling, data acquisition, data transfer, report preparation, and report review.

10.2.1 Reference Materials and Reagents

Whenever possible, primary reference materials for instrument calibration, QC spikes, and performance evaluations will be obtained from the National Bureau of Standards (NBS) or the Environmental Protection Agency. In the absence of available reference materials from these organizations, other reliable sources will be sought. Such secondary reference materials may be used for these functions provided that they are traceable to an NBS standard.

Laboratory reagent quality will be sufficient to minimize or eliminate detectable concentrations of analytes in laboratory blanks. Furthermore, reagents will not contain other contaminants that interfere with sample analysis.

10.2.2 Laboratory Data Management

10.2.2.1 Laboratory Data Collection

In addition to the data recorded in field logbooks and chain-of-custody forms, data that describes sample processing will be recorded in laboratory notebooks. Laboratory notebooks will contain the following information:

- Date of processing
- Sample numbers
- Case number
- Analyses performed
- Calibration data

- QC samples
- Concentrations/dilutions required
- Instrument readings
- Special observations
- Analyst's signature

10.2.2.2 Laboratory Data Logging

TTI laboratories will utilize an established system for sample check-in, tracking of samples through the laboratory, assignment of laboratory analyses, and sample check-out. The system will provide for management review of all laboratory data before the issuance of laboratory reports. The review will be accomplished on two levels: (1) review of raw data for each analysis, and (2) review of the final results to check for consistency or agreement of the results between all parameters.

10.2.2.3 Laboratory Data Reduction

For methods that utilize a calibration curve, sample responses will be applied to the linear regression line to obtain an initial raw result that will be factored into equations to estimate the concentration in the original sample. Rounding will only be performed after the final result has been obtained to minimize rounding errors. Copies of the raw data and the calculations used to generate the final results will be retained on file to allow reconstruction of the data reduction process at a later date if necessary.

At the completion of a set of analyses, all calculations will be completed and checked by the analyst. The associated QC data will be entered onto QC charts. If all data is acceptable, the data summaries will be submitted to the laboratory project manager for review. If QC samples do not meet acceptance criteria, the appropriate laboratory project manager will be notified, and corrective action will be taken as specified in Section 10.2.3.

10.2.2.4 Laboratory Data Review

System reviews will be performed at all levels. The individual analyst will constantly review the quality of data through calibration checks, QC sample results, and performance evaluation samples. These reviews will be performed prior to submission to the laboratory project manager.

The laboratory project manager will review data for consistency and reasonableness with other data and will determine if QA/QC program requirements have been satisfied. Selected hard copy output of data, such as chromatograms and spectra, will be reviewed to verify that results were interpreted correctly. Unusual or unexpected results will be reviewed and a resolution will be made as to whether the analysis should be repeated. In addition, the laboratory project manager will recalculate selected results to verify the calculation procedure.

10.2.3 Corrective Actions

An analysis will be considered to be out of control when it does not conform to the QA/QC protocols specified by this document, applicable methods, or standard operating procedures. When an analysis is out of control, the analyst who identifies the problem will document the occurrence and notify the laboratory project manager. The analyst, working with the laboratory project manager, will determine the cause of the problem and take appropriate corrective action. Analysis may not resume until the problem has been corrected. Restoration of analytical control will be demonstrated by generating satisfactory calibration and/or QC sample data.

Data generated concurrently with an out-of-control system will be evaluated for usability in light of the nature of the deficiency. If the deficiency does not impair the usability of the results, the data will be reported and the deficiency noted in the laboratory data report (e.g., a constituent is detected in a laboratory blank but not in sample analyses). Where sample results are impaired, the FSO project manager will be notified. After the error has been corrected, the analysis will be rerun and the data can be reported. The laboratory project manager will outline the error and the corrective action in a QA report. If the cause of the error cannot be identified, the laboratory project manager will summarize the procedures and QA/QC used to analyze the sample and provide a statement of validity for the sample results.

Problems encountered during the field activities will be reported by the designated FSO field staff as soon after discovery as possible. The Atkins project manager will be responsible for ensuring that corrective actions produce satisfactory results in a timely manner. Outcomes of those actions and their effect or potential effect on the data will be reported to Atkins and NCTCOG.

Results of performance or systems audits or internal QC analyses may trigger corrective action within the designated laboratory and Atkins project team. However, it is generally the responsibility of the laboratory analyst or Atkins field personnel to initiate laboratory or field corrective actions, respectively.

11.0 Post-Sampling Activities

11.1 Equipment Maintenance

The FSO will perform maintenance activities after each mobilization. The FSO will clean field equipment and store in an accessible location at one of the FSO's storage facilities. Equipment cleaning procedures are described in the Teledyne ISCO 6712 Portable Samplers Installation and Operation Guide available at www.isco.com. Distilled water should be used for the equipment cleaning. All sample containers will be cleaned by the laboratory. Prior to the next quarter of sampling, the equipment will be returned to the site. Routine maintenance will be performed on the equipment, including replacing the auto-sampler composite containers and preparing the sampling stations for the next storm event. The shelter integrity will also be checked. The maintenance checklist in Appendix C will be used to guide and record the maintenance activities.

11.2 Data Management

The FSO will be responsible for the data management that will cover data storage systems, data handling, data validation and analysis, and data reporting.

An electronic data deliverable (EDD) will be established to store digital information such as laboratory analytical data and field recorded measurements. Hard-copy data from field sheets, log books, and computer outputs will be scanned as an electronic copy for backup.

The FSO will be responsible for the data validation that will be performed on field and laboratory data prior to submittal to the NCTCOG. Reports received from the laboratory will be reviewed for consistency and completeness. Reports will also be checked for the requested analyses and QA activities performed by the laboratory. Corrective actions will be initiated if inconsistencies or problems are encountered with submitted reports.

A data reporting schedule will be developed with NCTCOG. All validated sample collection data will be submitted to the NCTCOG in a pre-approved database or report format. Data will be reported in both hard copy and electronic formats. The data will also be input into the regional monitoring program database.

11.3 Floods and Retrieval of Equipment

FSO personnel will be aware of flood warnings and watches as posted by the National Weather Service. If flooding is anticipated, the FSO will make every effort to travel to the sampling equipment and remove it from watersheds where the flooding is expected. If the equipment is submerged or dangerous conditions threaten field personnel, the equipment may be abandoned and retrieved when the conditions subside.

11.4 Redeployment of Equipment

The automatic samplers will be serviced by the FSO and redeployed prior to each sampling quarter. The samplers will be serviced following the guidelines established by Teledyne Isco (2013 and 2016). These guides are available for download at www.isco.com. After collection of the last quarterly sample, all equipment will be removed and returned to the storage facility for cleaning and repairs, as necessary, before deploying to new sampling locations.

12.0 Health and Safety

This section is provided to assist field personnel in the safe performance of water quality data collection. Field work requires an awareness of potential hazards and knowledge of basic safety procedures. Atkins will provide health and safety documentation for this project to field personnel. Prior to the start of any work activity conducted by Atkins, all personnel participating in the work will review the applicable documentation to ensure full understanding of the job task, its associated hazards, and all applicable mitigation measures. All personnel must acknowledge this understanding and their intent to fully comply with all health and safety requirements by signing the provided Acknowledgement page.

12.1 Basic Safety Preparation

Basic preparations will be routine before every sampling activity. At a minimum, a trip plan should be completed for each field trip and left at a designated location in each consultant's office. The trip plan should include the following information:

- Field trip participants
- Departure and return times
- Contact phone numbers
- Basic itinerary, including where and when sampling will be performed

Field work must be done in pairs. FSO field staff will consider carrying the following safety equipment during sample collection activities:

- Rubber boots
- Safety vests, hard hats, and steel-toed shoes
- Amber warning light for vehicle
- Reflective traffic cones
- Bug repellent
- First aid kit
- Flashlight and spare batteries
- Cellular phone
- Rain gear
- Hat/sunscreen/sunglasses
- Drinking water/sports drinks
- Tool box with basic tools
- Latex gloves
- Antibacterial soap or hand cleaner
- Distilled water, 1 gallon

- List of emergency phone numbers/office contacts

The FSO will carry a packet of general safety information in each vehicle that contains the following materials:

- Emergency phone numbers
- Picture identification cards, insurance information, and project identification sheets
- Laminated work authorization from the NCTCOG
- Locations of emergency facilities (hospitals and police and fire departments)

12.2 Hazards

Atkins has developed and continually updates job safety instructions for known hazards and activities. Atkins will issue instructions to field personnel and provide updated instructions as necessary as part of the health and safety documentation provided to field personnel.

12.3 First Aid Equipment and Supplies

A first aid kit will be located within the vehicle located at the project sites during sample collection. The first aid kit must include at a minimum: snakebite kit, potable distilled water, bandages, scissors or knife, antiseptic, bee sting kit, and allergic reaction to insect bite kit.

Other required procedures to reduce injury include:

- Confined entry will not be conducted.
- Stream reaches must not be entered below the water level during sample collection, during a rainstorm, or when rain is imminent. FSO field staff must be aware of flash flood warnings and remain in contact with FSO office staff.
- Appropriate lighting equipment will be carried to illuminate potential hazards. The stream banks may be muddy and slippery.
- Care must be taken when handling the heavy composite and grab containers.

12.4 Selection of PPE

The selection of the personal protective equipment (PPE) will be done per site/field activity and after a thorough evaluation of the hazards involved at the site during each phase of the operation.

Recommended and required PPE is comprised of the following:

- Latex gloves when handling storm water samples
- Raingear
- Rubber boots

- Safety vest – reflective
- Coveralls or work clothing
- Work gloves

12.5 Nearest Hospital Information

Locations and information for the nearest hospitals for the various sampling sites are located in Appendix F.

12.6 Emergency Contact Information

Emergency contacts are listed below:

FIRE*	9-1-1
POLICE*	9-1-1
NATIONAL SPILL RESPONSE CENTER	(800) 424-8802
HOSPITAL	See Appendix F
AMBULANCE*	9-1-1

* Local Area Police and Fire will respond to a 9-1-1 call.

13.0 References

North Central Texas Council of Governments (NCTCOG). 2017. The North Central Texas Regional Wet Weather Characterization Plan Proposal for the Fourth Permit Term. 2017. Arlington, Texas.

National Weather Service Weather Forecast Office (NWSWFO). 2011. *National Weather Service Weather Forecast Office Dallas/Fort Worth, TX*. http://www.srh.noaa.gov/fwd/.

Teledyne Isco. 2016. 6712 Portable Samplers Installation and Operation Guide. Revision KK. February 2016. Lincoln, NE.

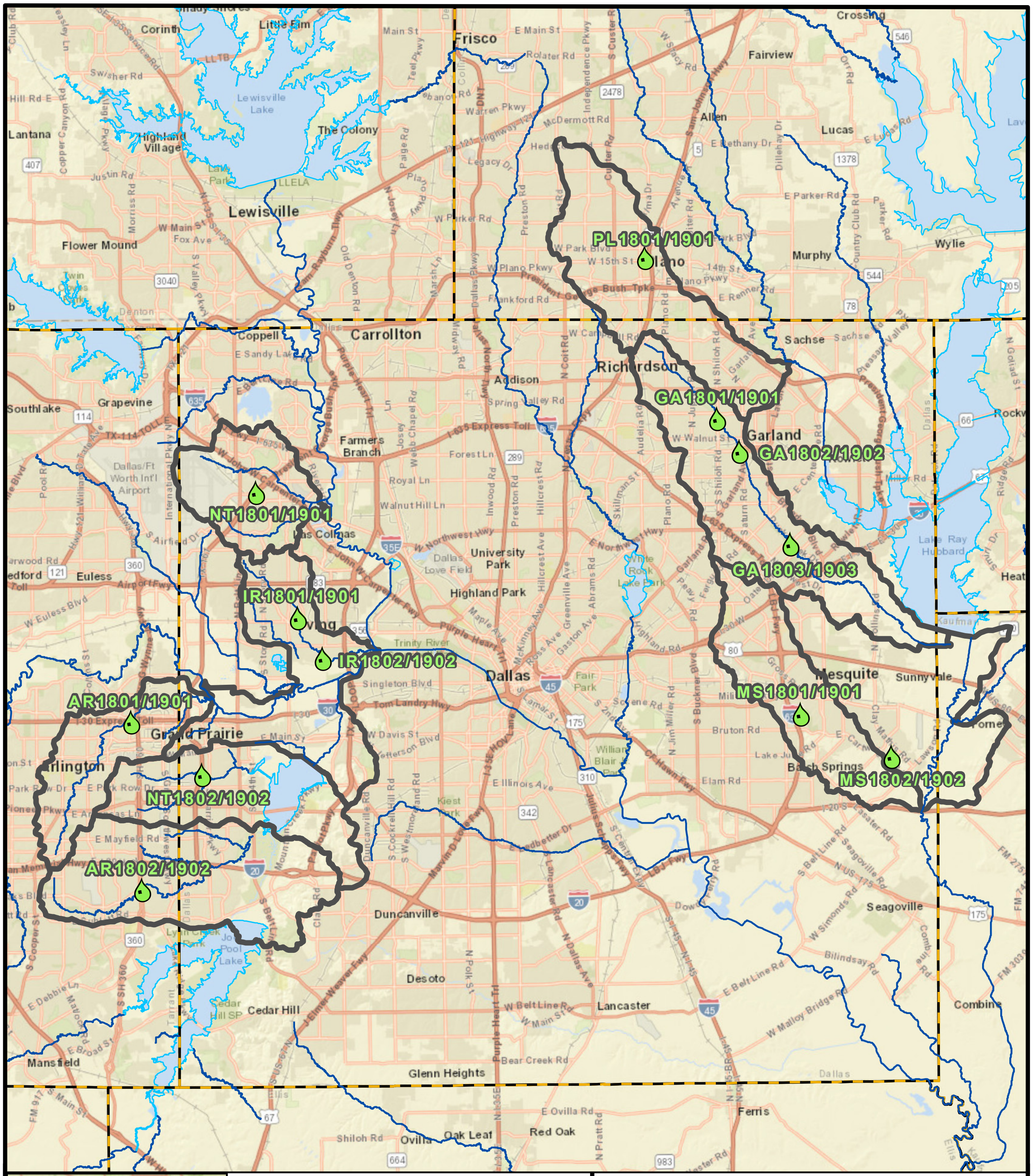
Teledyne Isco. 2013. 730 Bubbler Module Installation and Operation Guide. Revision M. October 2013. Lincoln, NE.

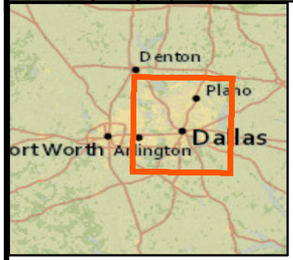
Appendix A

Sampling Locations

Monitoring Station Map

2018-2019





● Monitoring Station

〰 Stream Segments

Waterbody

Watershed

County Boundary

Datum: NAD 1983
Projection: State Plane
Texas North Central
Units: Feet
Basemap: ESRI Streets

0 3 6 Miles

N

ATKINS
Member of the SNC-Lavalin Group

Monitoring Stations
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Permit Term Four

Collin, Tarrant, and Dallas Counties, Texas

Job No.: 100060260	Scale: 1 " = 6 miles
Prepared By: ATKINS/WHIT6392	Date: May 01, 2018

N:\Clients\M_N\NCTCOG\100060260\geo\figs\sampling.mxd

Esri, DeLorme, HERE, USGS, Intermap, iPC, NRCAN, METI, TomTom. World Street Map. March 2014.
1:379,900; generated by Atkins; using ArcMap. <http://server.arcgisonline.com/ArcGIS/rest/services/World_Street_Map/MapServer> (01 May 2018)

City of Arlington

2018 - 2019 Sites

Johnson Creek and Fish Creek – Mountain Creek Lake Watersheds

Johnson Creek at Six Flags

AR1801/1901

DFWMaps.com

North Central Texas
Council of Governments

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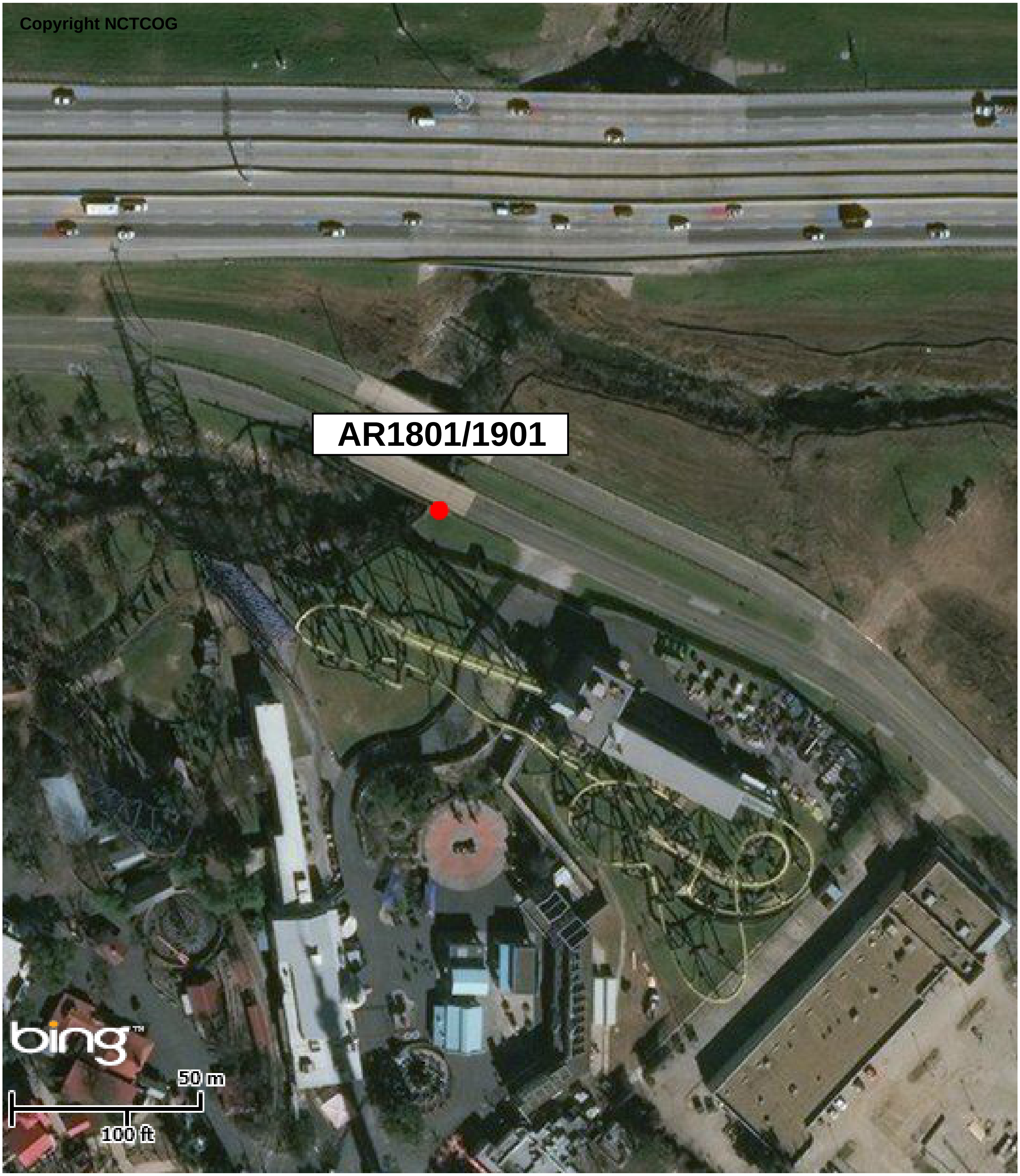

DFWMaps.com

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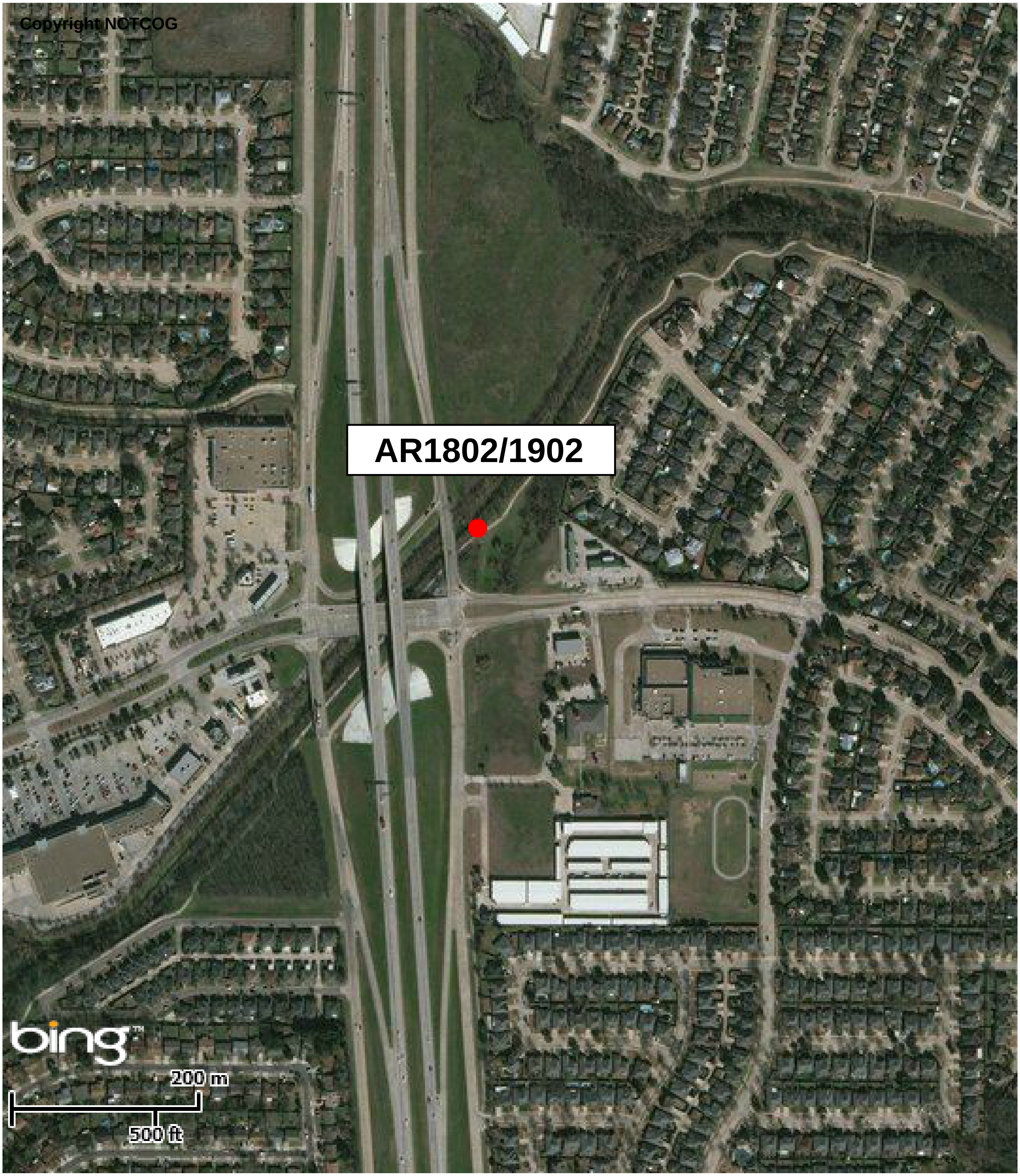
Fish Creek at SH360

AR1802/1902



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Council of Governments

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Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/20/17 Time: 09:49

Location Name/Number: ARL 003 - Johnson Creek @ Copeland

Nearest Cross Street/Location Description: East Copeland + Six Flags Drive

Entity (Circle One): [✓ Arlington] Garland Irving Mesquite NTTA Plano

GPS Latitude/Longitude: 32°45'31.72"N, 97°04'09.41" W

Receiving Water: West Fork Trinty

Data for locating automated samplers:

Ease of Installation ~ Native or Existing Location / Bench ~ [✓ Need to construct Location / Platform / Base]

Describe: Flat surface present, slight leveling needed

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Easy access to box location. Tube maintenance more difficult. Almost vertical rip-rap to water surface.

Conveyance Information:

Conveyance Type & Size (Example: [✓ Unlined Channel], Grassy Swale, Open Channel Chute, etc.)

Describe: Rip-rap on east bank (right bank) + west bank.

Vegetative Cover ~ High ~ [✓ Medium] ~ Low

Describe: Trees growing out of rip-rap. Grass area well-maintained

Visibility from the Right-of-Way ~ High Visibility ~ [✓ Low Visibility] ~ None

Describe: Set below bridge elevation, low visibility from road

Public Access ~ [✓ Yes] ~ No

Describe: At gate to Six Flags. (employee gate)

Evidence of Public Use ~ Yes ~ No (Circle all that apply, or describe)

Cans ~ [✓ Bottles] ~ Paper ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe: Minimal debris

Evidence of Normal Surface Water Elevation ~ [✓ Yes] ~ No ~ Depth >2' inches/[✓ feet]

Describe:

Perennial Flow Presence ~ High ~ [✓ Medium] ~ Low ~ Depth >2' inches/[✓ feet]

Describe:

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~20'
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~20'
(Recommended to be less than 25 feet)

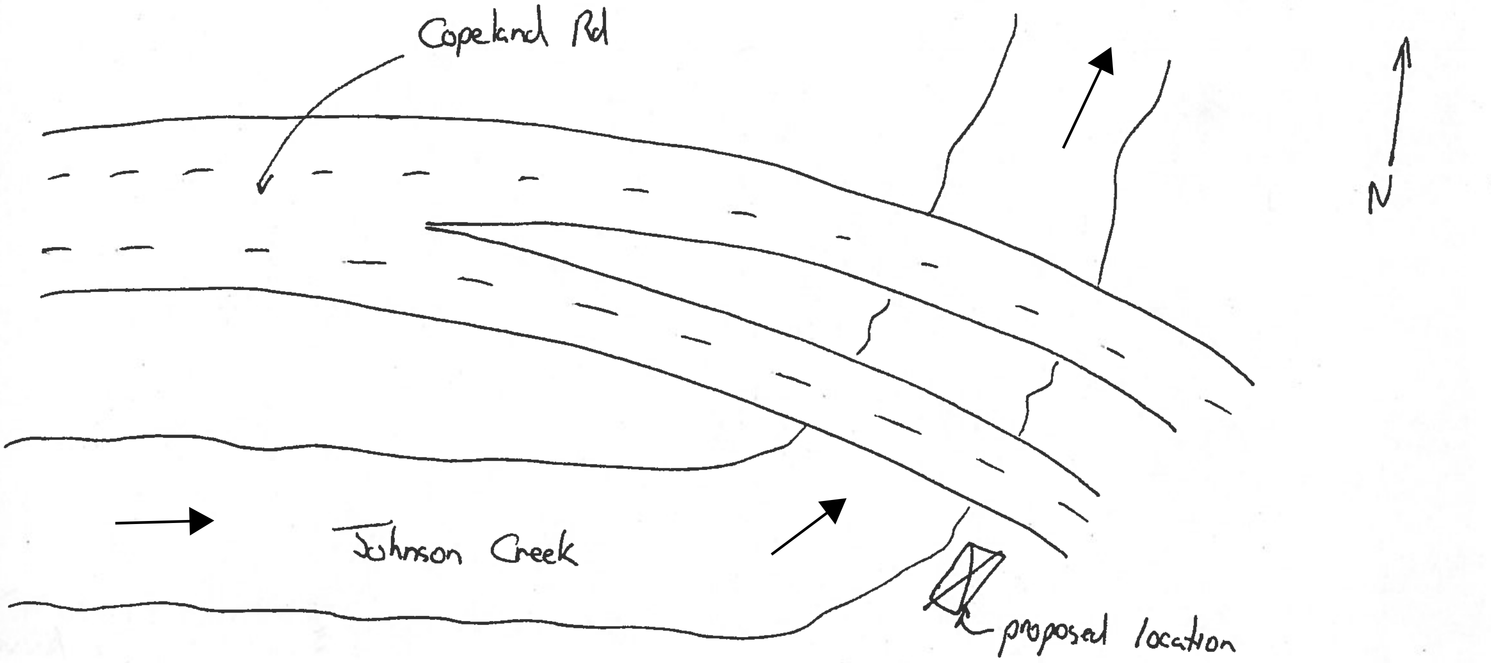
Other Site Features of Importance: Road construction of Copeland (~~East~~ westbound). East bound access only. SWP3 BMP's in place
Tree and branch removal needed.

Notes:

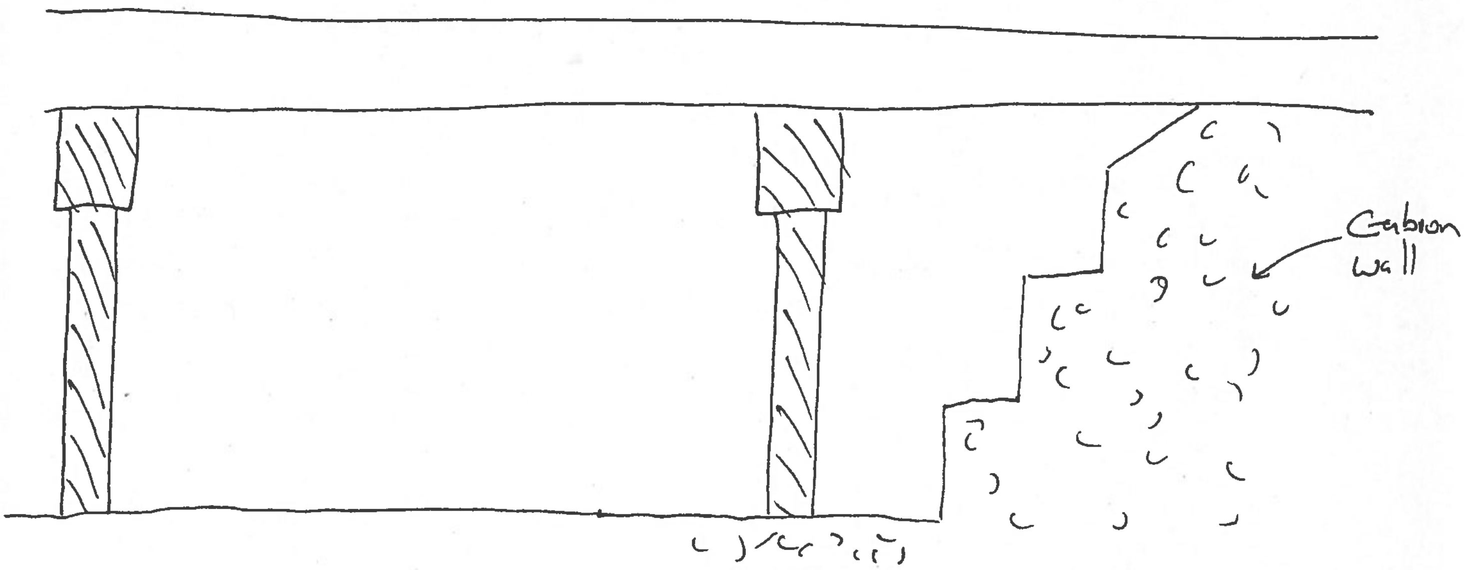
Provide Site Visit Attendee Name(s) and Company/Entity:
Brigette Gibson - City of Arlington
Ryan Deal - FNI

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/20/17 Time: 11:06

Location Name/Number: ARL-004 – Fish Creek @ 360

Nearest Cross Street/Location Description: Kingswood Blvd./SE Green Oaks Blvd. + SH-360

Entity (Circle One): [✓ Arlington] Garland Irving Mesquite NTTA Plano

GPS Latitude/Longitude: 32°39'44.47"N, 97°03'41.31"W

Receiving Water: West Fork Trinity

Data for locating automated samplers:

Ease of Installation ~ Native or Existing Location / Bench [✓ ~ Need to construct Location / Platform / Base]

Describe: Brush clearing needed, somewhat level ground

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Access off of SE Green Oaks Blvd. Next to Trinity Trail system

Conveyance Information:

RD

Conveyance Type & Size (Example: [✓ ~~Unlined~~ Channel,] Grassy Swale, Open Channel Chute, etc.)

Describe: ~~Natural stream channel~~ Lined channel (concrete)

Vegetative Cover ~ [✓ High] ~ Medium ~ Low

Describe: Good riparian buffer

Visibility from the Right-of-Way [✓ ~ High Visibility] [✓ ~ Low Visibility] ~ None

Describe: Low from roadway, high from trail

Public Access ~ [✓ Yes] ~ No

Describe: Trail system

Evidence of Public Use ~ [✓ Yes] ~ No (Circle all that apply, or describe)

[✓ Cans] ~ [✓ Bottles] ~ [✓ Paper] ~ [✓ Food Products] ~ Rubble ~ Wood ~ [✓ Brush] ~ Graffiti ~ Transient Community

Describe: In channel, does not appear to be from trail

Evidence of Normal Surface Water Elevation ~ [✓ Yes] ~ No ~ Depth <2" [✓ inches]/feet

Describe:

Perennial Flow Presence ~ High ~ Medium ~ [✓ Low] ~ Depth <2" [✓ inches]/feet

Describe:

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~35'
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~6'
(Recommended to be less than 25 feet)

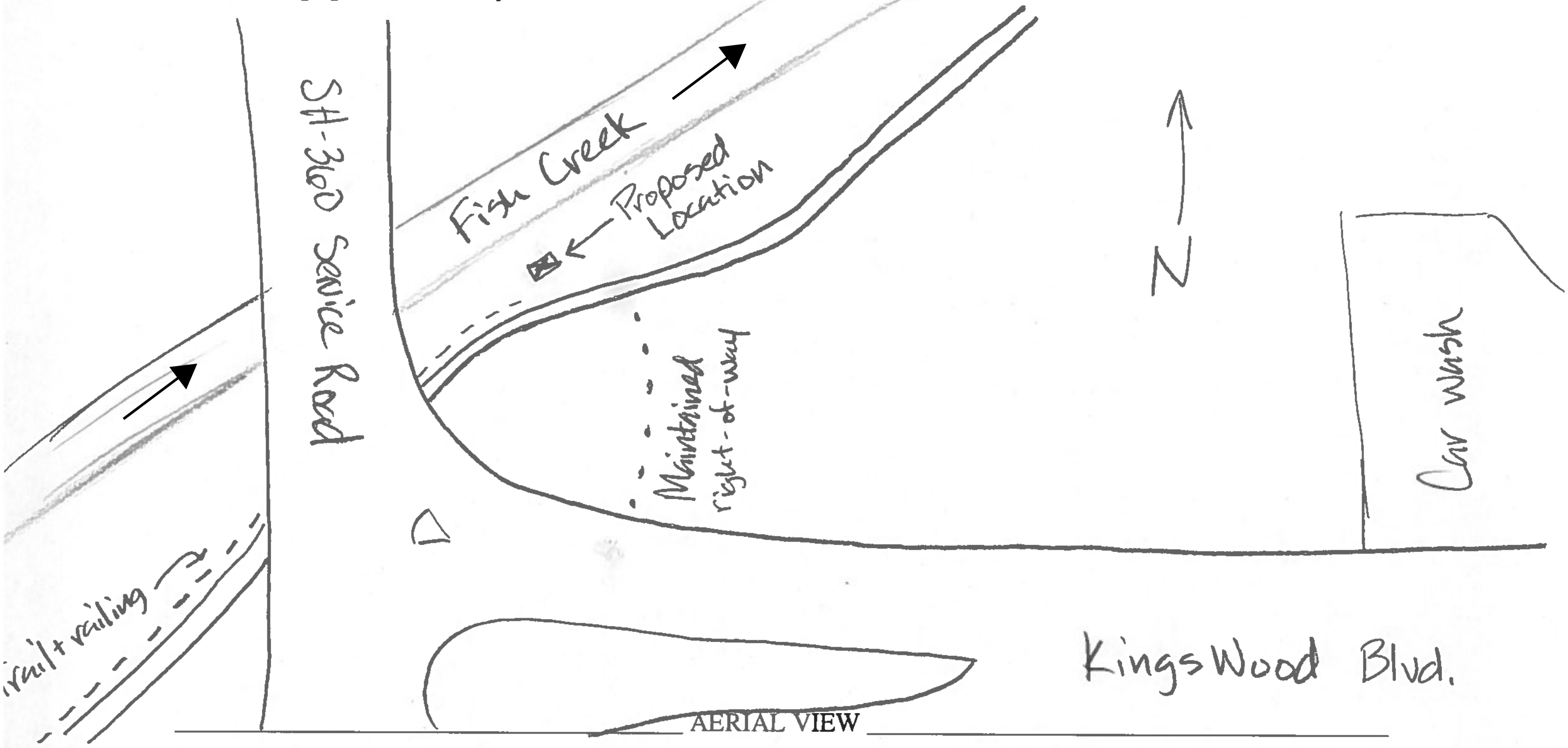
Other Site Features of Importance: Heavy brush, trail access. Vandalism likely

Notes:

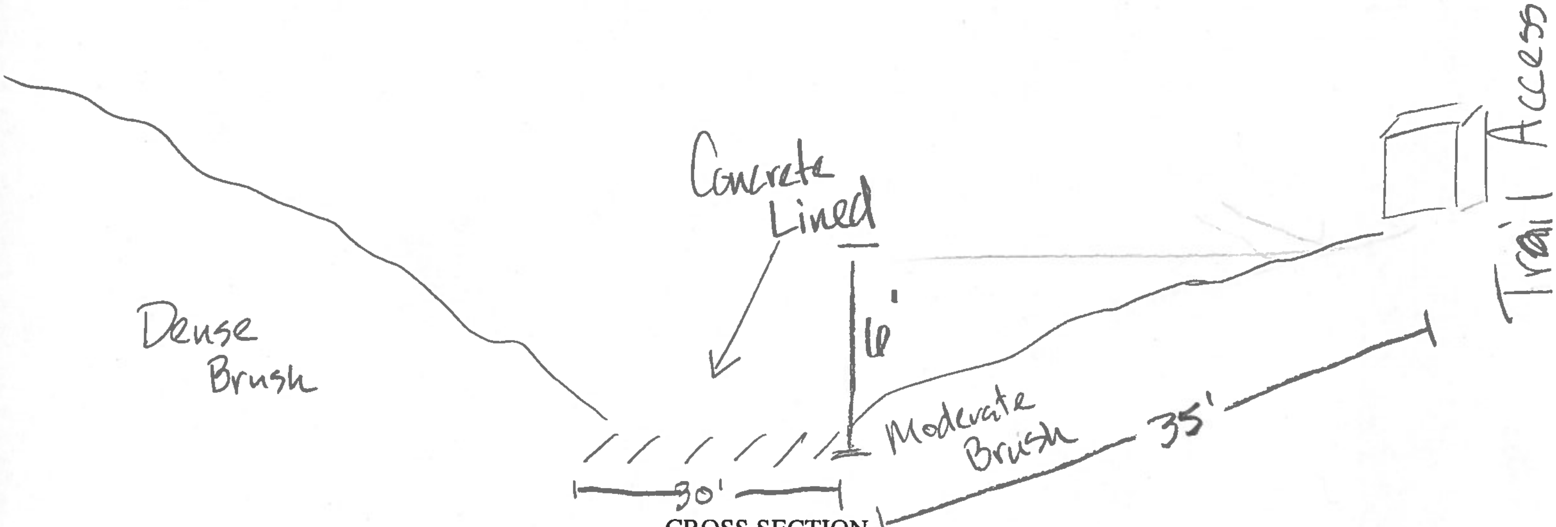
Provide Site Visit Attendee Name(s) and Company/Entity:
Brigette Gibson - City of Arlington
Ryan Deal - FNI

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

City of Garland

2018 - 2019 Sites

Duck Creek Watershed

Duck Creek at Shiloh Bridge

GA1801/1901

North Central Texas
Council of Governments

DFWMaps.com

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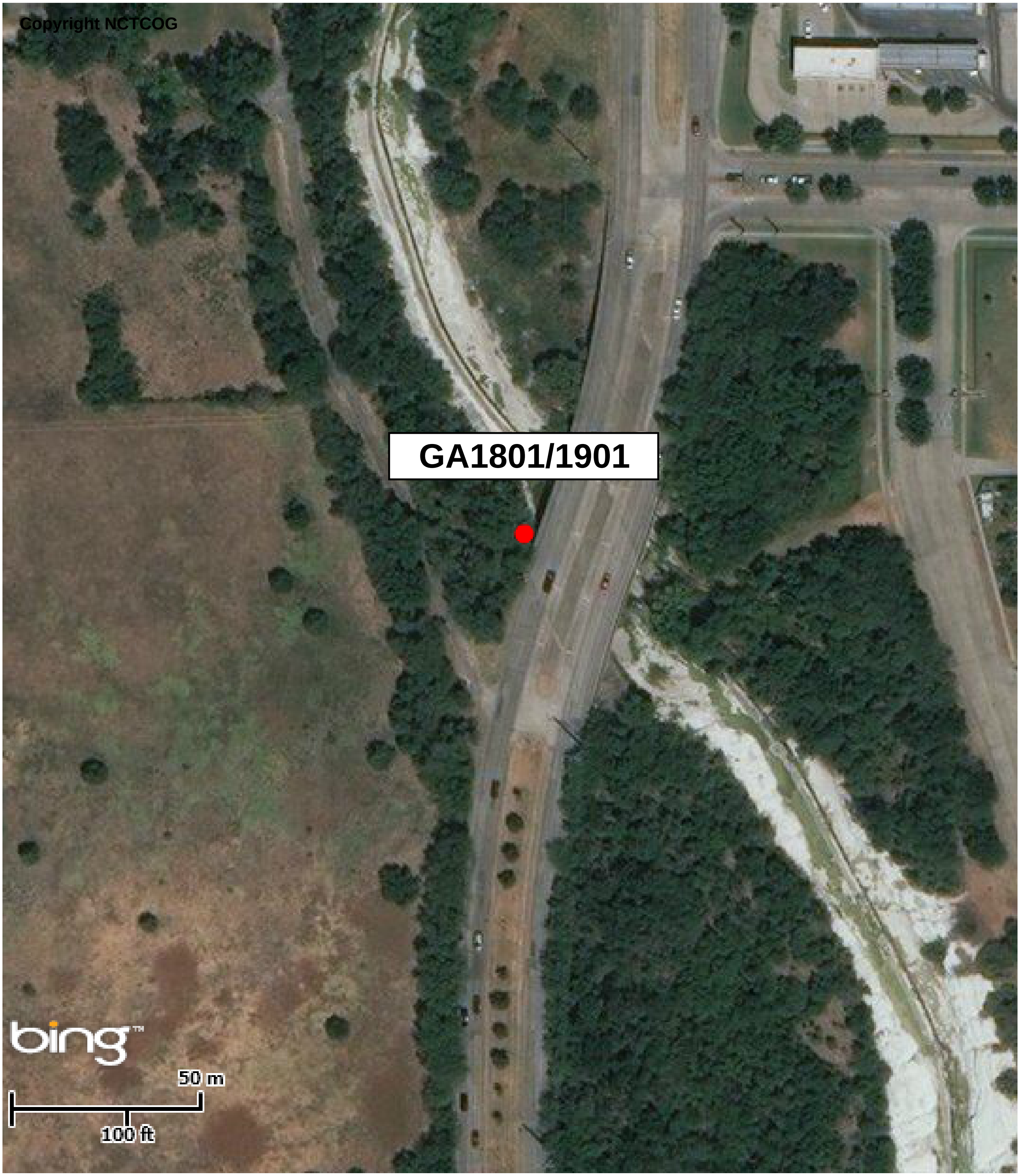

North Central Texas Council of Governments

DFWMaps.com

DISCLAIMER
This data has been compiled for NCTCOG.
Various official and unofficial sources were used to gather this information. Every effort was made to ensure the accuracy of this data, however, no guarantee is given or implied as to the accuracy of said data.

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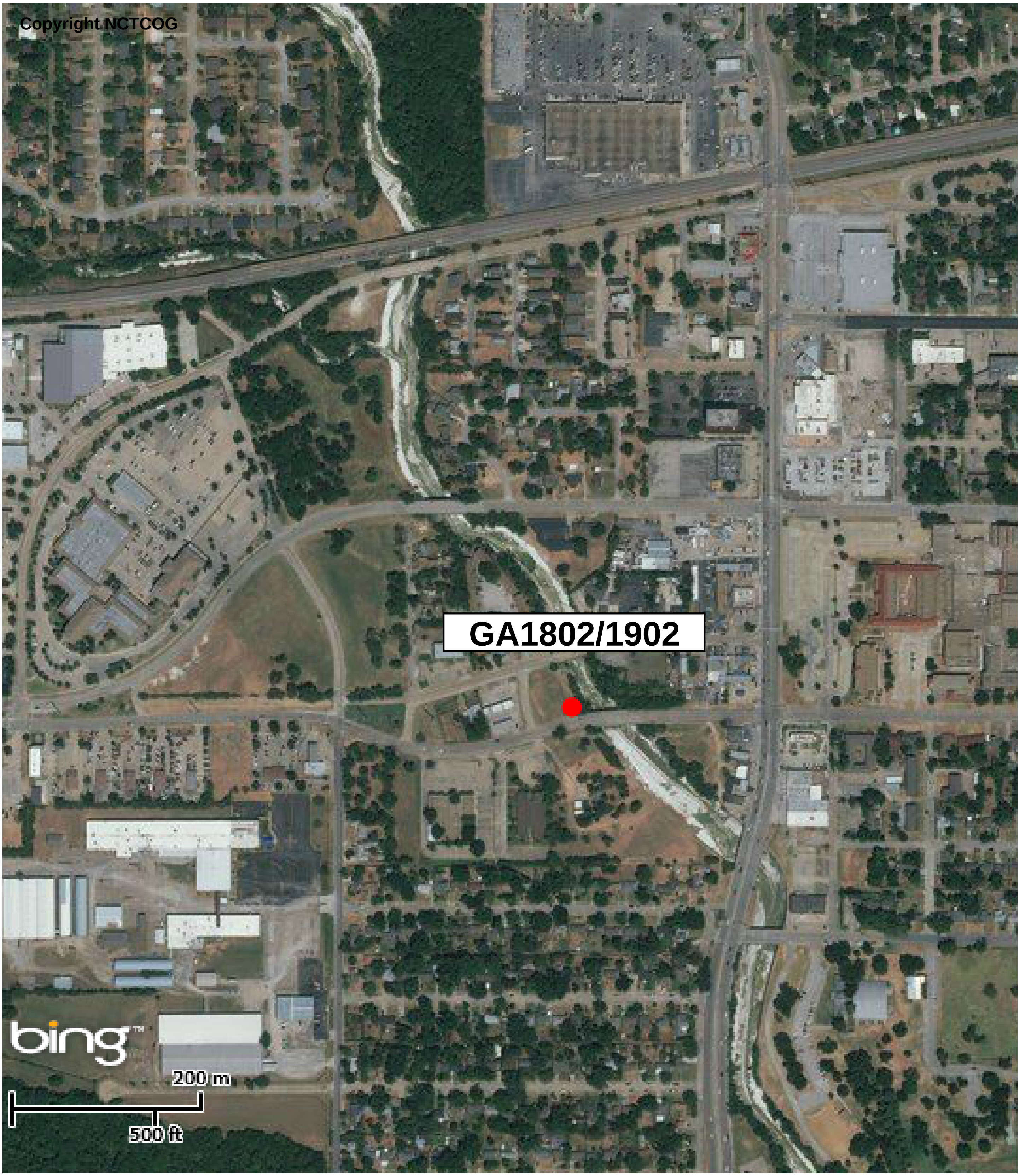
Duck Creek between Forest North and South

GA1802/1902



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Council of Governments

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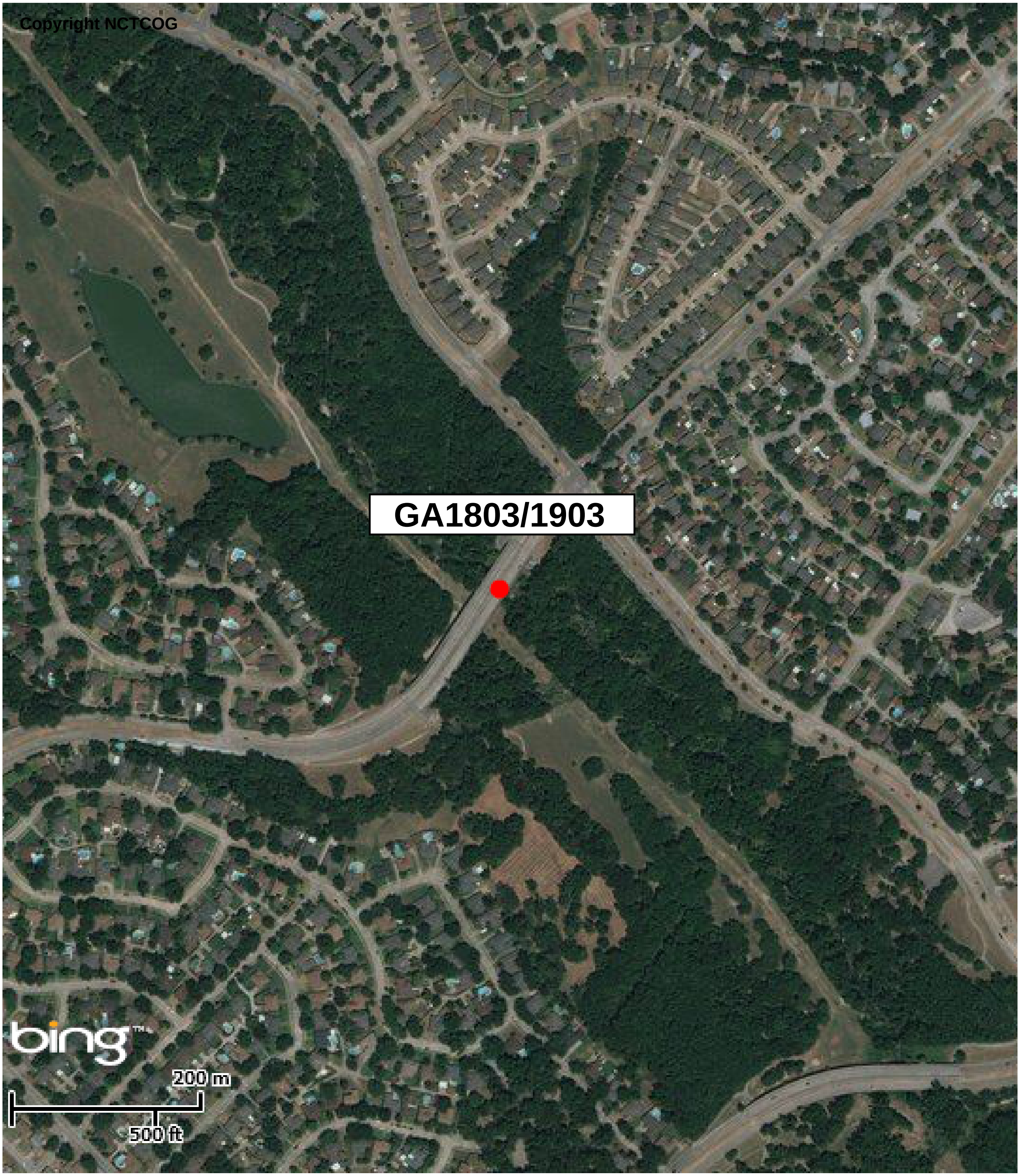
North Central Texas
Council of Governments

DFWMaps.com

Duck Creek under La Prada Bridge

GA1803/1903



North Central Texas Council of Governments

DFWMaps.com

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North Central Texas Council of Governments

DFWMaps.com

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Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/15/17 Time: 9:00 AM

Location Name/Number: Site F Shiloh GA 01 A

Nearest Cross Street/Location Description: N. Shiloh Road

Entity (Circle One): Arlington [✓ Garland] Irving Mesquite NTTA Plano

GPS Latitude/Longitude: 32.928232° / -96.665222°

Receiving Water: Duck Creek

Data for locating automated samplers:

Ease of Installation [✓ Native or Existing Location] / Bench Need to construct Location / Platform / Base

Describe: Level area above rock ledges from previous shelter

Ease of channel/sample area access and safety: Describe either [✓ YES] or NO

Describe: Walk next to roadway; park on west side of Shiloh, south of bridge on small road in grass

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Rock channel, unlined, natural, minimal sediment deposits; channel not expected to shift

Vegetative Cover [✓ High] Medium Low

Describe: Lots of vegetation on top of bank; some clearing required

Visibility from the Right-of-Way High Visibility [✓ Low Visibility] None

Describe: SW side of bridge

Public Access Yes [✓ No]

Describe: Only from bridge; very little public use

Shiloh

Evidence of Public Use [✓ Yes] No (Circle all that apply, or describe)

[✓ Cans] [✓ Bottles] [✓ Paper] Food Products Rubble [✓ Wood] Brush Graffiti Transient Community

Describe: Some trash located on top of bank

Evidence of Normal Surface Water Elevation [✓ Yes] No Depth ~3 [✓ inches]/feet

Describe: Water about 3 inches deep on bottom of concrete apron

Perennial Flow Presence High [✓ Medium] Low Depth ~3 [✓ inches]/feet

Describe: Moderate flow; riffles upstream and downstream

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water 25 ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample 24 ft
(Recommended to be less than 25 feet)

Other Site Features of Importance: Kimley-Horn development adjacent
Plans submitted to City for subdivision.

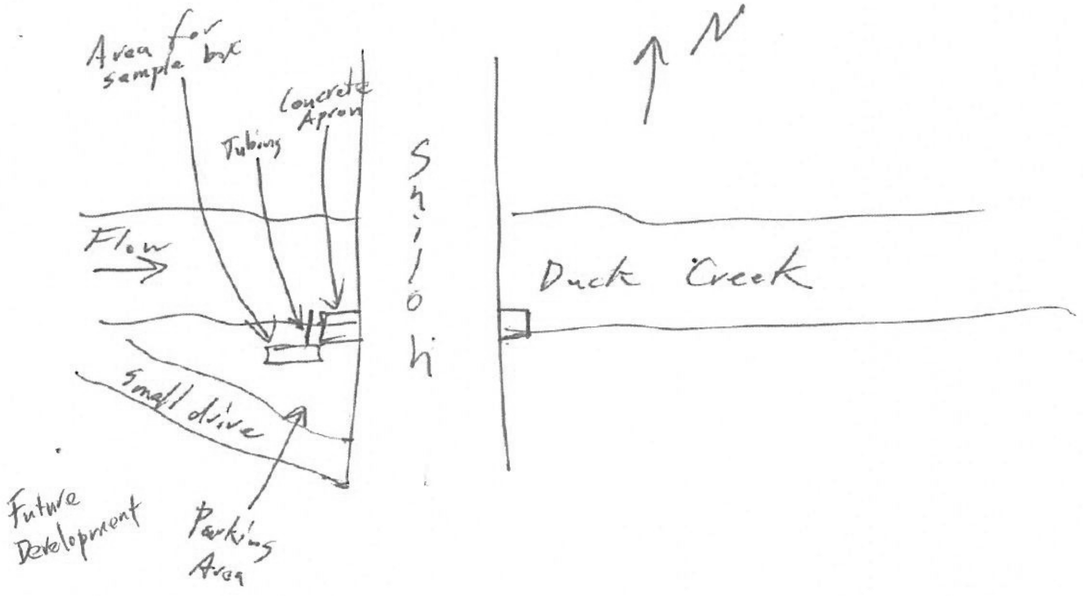
Notes:

Provide Site Visit Attendee Name(s) and Company/Entity:

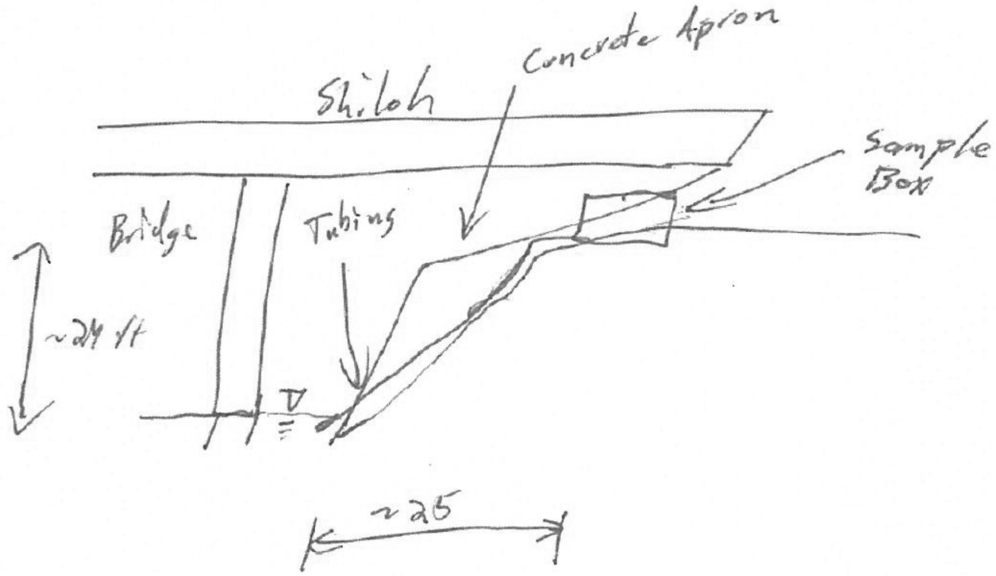
Wayne Wolverton - City of ~~Plano~~ Garland
Mike Wilson - City of ~~Plano~~ Garland
Chad Richards - Atkins

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/15/17 Time: 9:15 AM

Location Name/Number: Site G Forest Lane GA 02 A

Nearest Cross Street/Location Description: S. Forest Lane

Entity (Circle One): Arlington [✓ Garland] Irving Mesquite NTTA Plano

GPS Latitude/Longitude: 32.909388° / -96.650556°

Receiving Water: Duck Creek

Data for locating automated samplers:

Ease of Installation [✓ Native or Existing Location] / Bench Need to construct Location / Platform / Base

Describe: Top of bank level from previous installation

Ease of channel/sample area access and safety: Describe either [✓ YES] or NO

Describe: Drive onto grass area off of Kevin Street b/w Forest Lane bridges

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Rock bottom; earthen sides; gradual side slope on west bank

Vegetative Cover High Medium [✓ Low]

Describe: Low on west bank; medium near channel bottom

Visibility from the Right-of-Way [✓ High Visibility] Low Visibility None

Describe: Located b/w bridges in open area

Public Access [✓ Yes] No

Describe: May get pedestrian traffic crossing b/w Forest Lane North and South

Forest Lane

Evidence of Public Use Yes [✓ No] (Circle all that apply, or describe)

Cans Bottles Paper Food Products Rubble Wood Brush Graffiti Transient Community

Describe: Very little trash; some remnants of old sampling lines

Evidence of Normal Surface Water Elevation [✓ Yes] No Depth 3 [✓ inches]/feet

Describe: Mostly shallow on west side

Perennial Flow Presence High [✓ Medium] Low Depth 3 [✓ inches]/feet

Describe: Moderate flow present; channel very wide; mostly shallow with few pools

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water 30 ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample 25 ft
(Recommended to be less than 25 feet) Almost TOB

Other Site Features of Importance: Rock channel bottom with minimal sediment deposits; wide channel; flow stream not expected to shift

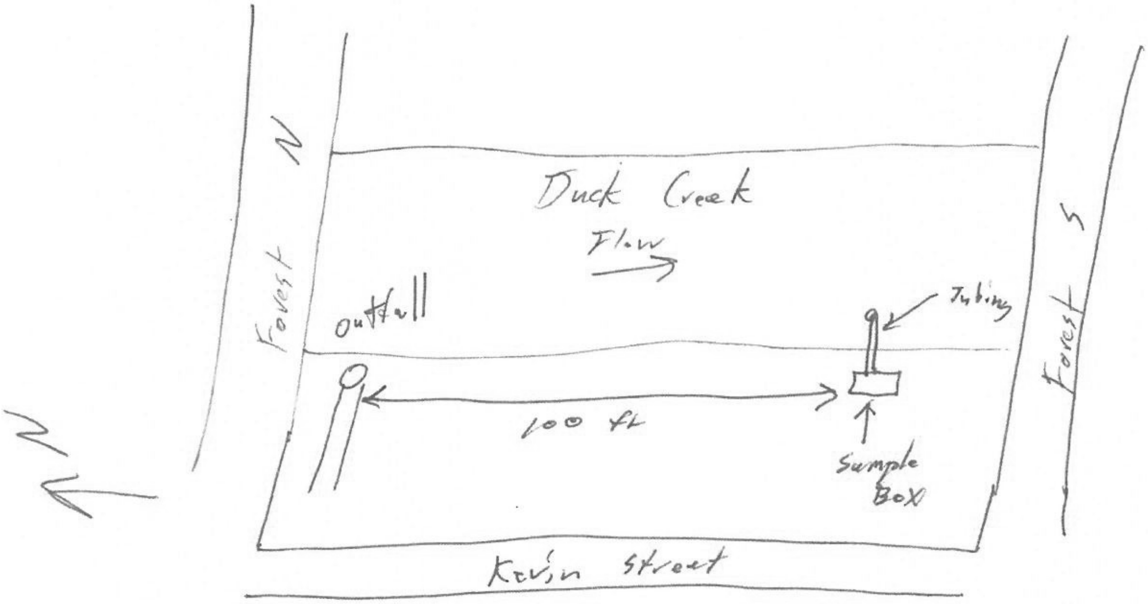
Notes: Previous installation near manhole

Provide Site Visit Attendee Name(s) and Company/Entity:

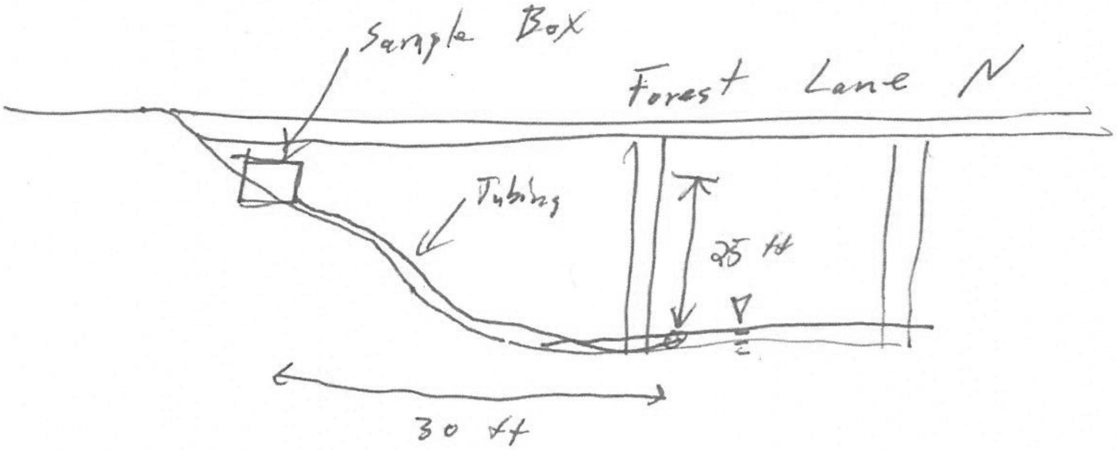
Wayne Wolverton - City of Garland
Mike Wilson - City of Garland
Chad Richards - Atkins

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: [✓ Upstream] / Downstream (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/15/17 Time: 9:50

Location Name/Number: Site H La Prada GA 03 A

Nearest Cross Street/Location Description: La Prada Drive

Entity (Circle One): Arlington [✓ Garland] Irving Mesquite NTTA Plano

GPS Latitude/Longitude: 32.855468° , -96.616894°

Receiving Water: Duck Creek

Data for locating automated samplers:

Ease of Installation [✓ Native or Existing Location / Bench] Need to construct Location / Platform / Base

Describe: Secure to top of bank on gabions.

Ease of channel/sample area access and safety: Describe either [✓ YES] or NO

Describe: Access down sidewalk and gravel road; do not park under bridge when wet

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Unlined channel with gravel bottom

Vegetative Cover High Medium [✓ Low]

Describe: None under bridge; medium on sides of bridge

Visibility from the Right-of-Way High Visibility [✓ Low Visibility] None

Describe: Visible from walking / bike trails

Public Access [✓ Yes] No

Describe: Trails cross by area

La Prada

Evidence of Public Use [✓ Yes] No (Circle all that apply, or describe)

[✓ Cans] [✓ Bottles] [✓ Paper] Food Products [✓ Rubble] Wood Brush [✓ Graffiti] Transient Community

Describe: Evidence of use under bridge

Evidence of Normal Surface Water Elevation [✓ Yes] No Depth ~3 inches/[✓ feet]

Describe: Deep pool on west side of bridge; becomes shallower under bridge and goes to another deep pool downstream

Perennial Flow Presence [✓ High] Medium Low Depth ~3 inches/[✓ feet]

Describe: Moderate to high flow through channel

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water 25 ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample 20 ft
(Recommended to be less than 25 feet)

Other Site Features of Importance: Place sampler on upstream side to run conduit to pool

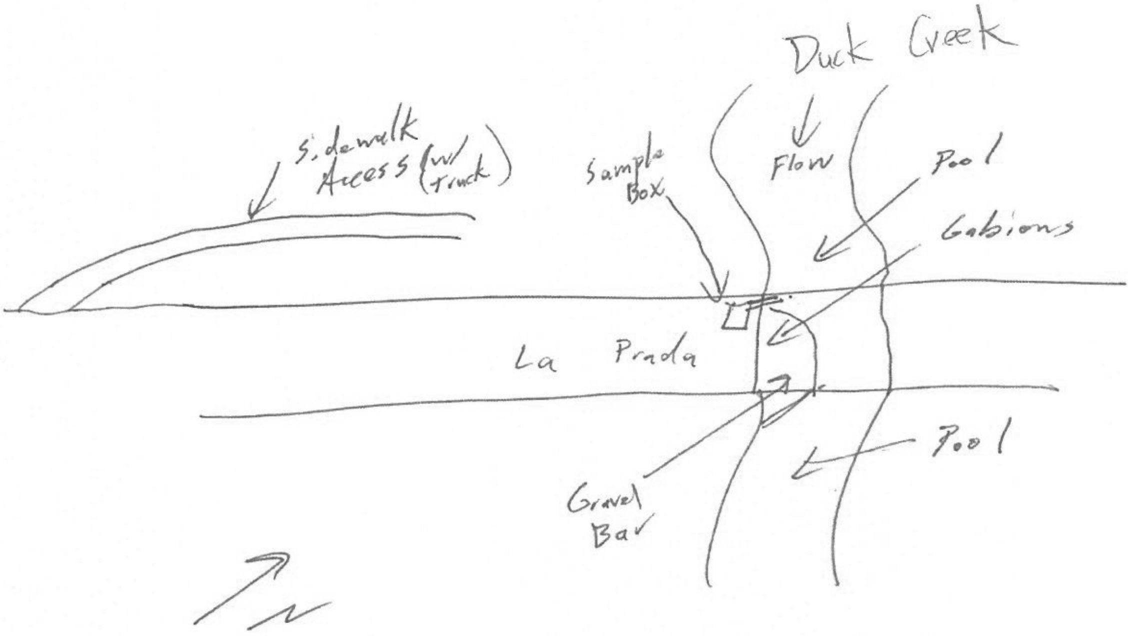
Notes:

Provide Site Visit Attendee Name(s) and Company/Entity:

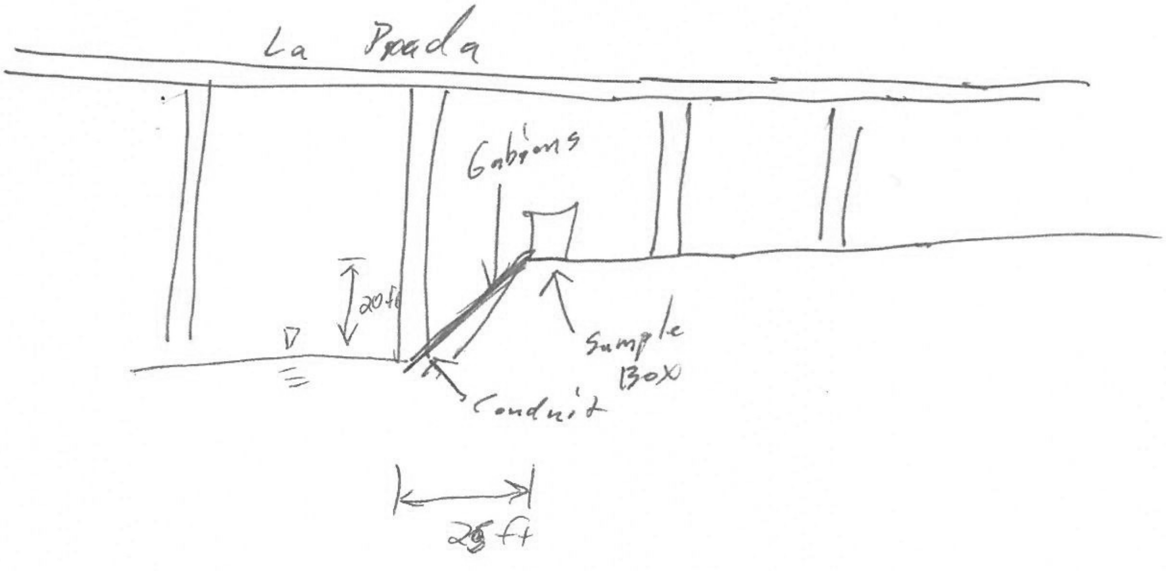
Chad Richards - Atkins
Mike Wilson - City of ~~[illegible]~~ Garland
Wayne Wolverton - City of ~~[illegible]~~ Garland

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

City of Irving

2018 - 2019 Sites

Delaware Creek – West Fork Trinity Watershed

Delaware Creek at Sowers Road

IR1801/1901

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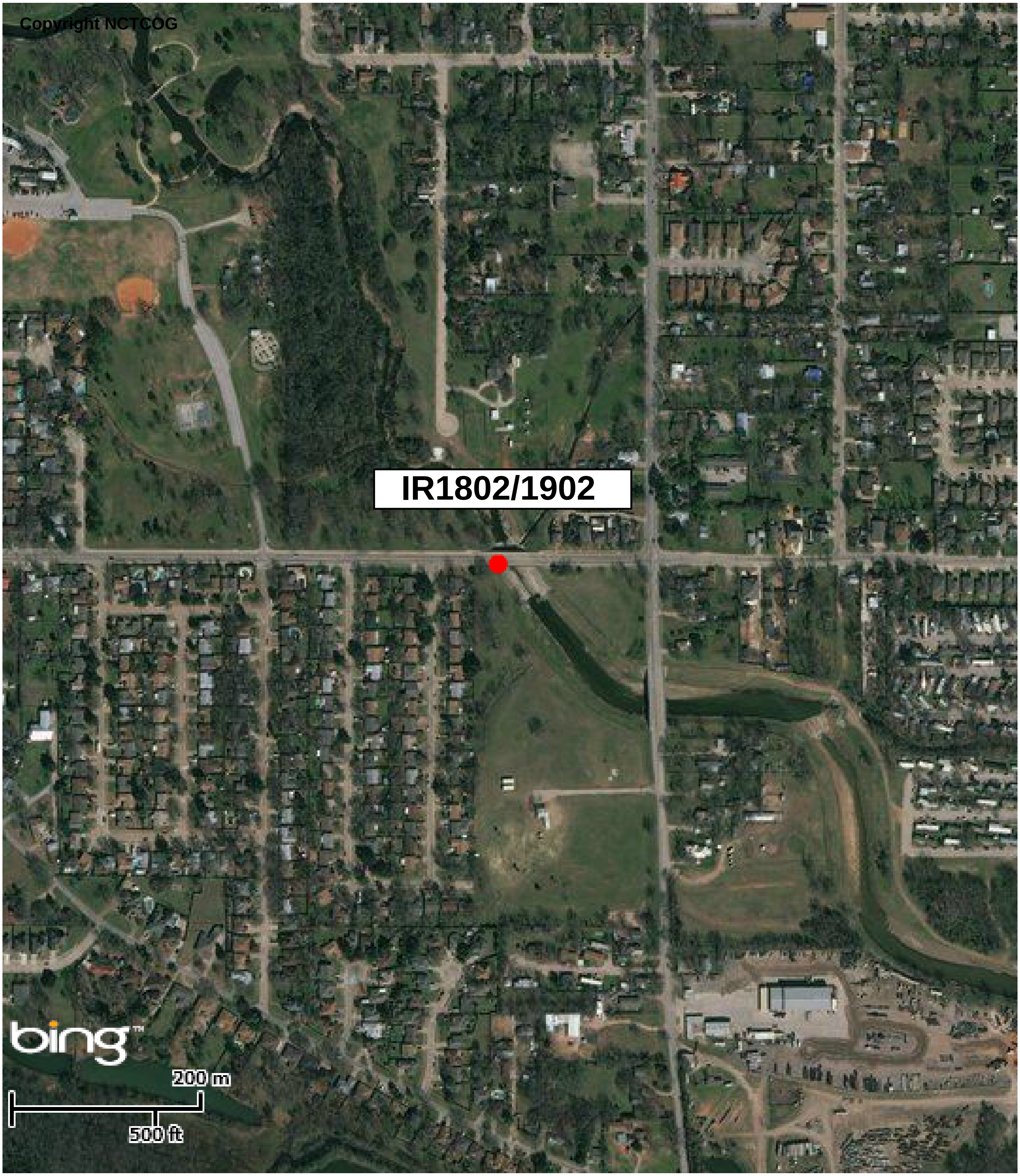
Delaware Creek at Oakdale

IR1802/1902



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Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/13/17 Time: 10:01

Location Name/Number: Delaware Alternative 1 - Sowers Road

Nearest Cross Street/Location Description:

Entity (Circle One): Arlington Garland [✓ Irving] Mesquite NTTA Plano

GPS Latitude/Longitude: 32.818N , 96.953N

Receiving Water: West Fork Trinity

Data for locating automated samplers:

Ease of Installation [✓ ~ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: Well maintained grass cover

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Parking lot access & limited veg.

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Concrete lined channel

Vegetative Cover ~ High ~ Medium ~ [✓ Low]

Describe: No veg in channel

Visibility from the Right-of-Way ~ [✓ High Visibility] ~ Low Visibility ~ None

Describe: Easily seen from Sowers Road

Public Access ~ [✓ Yes] ~ No

Describe: Parking lot adjacent to site

Evidence of Public Use ~ Yes ~ [✓ No] (Circle all that apply, or describe)

Cans ~ Bottles ~ Paper ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe:

Evidence of Normal Surface Water Elevation ~ [✓ Yes] ~ No ~ Depth <6" [✓ inches]/feet

Describe:

Perennial Flow Presence ~ High ~ Medium ~ [✓ Low] ~ Depth <6" [✓ inches]/feet

Describe:

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~35-40'
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~16'
(Recommended to be less than 25 feet)

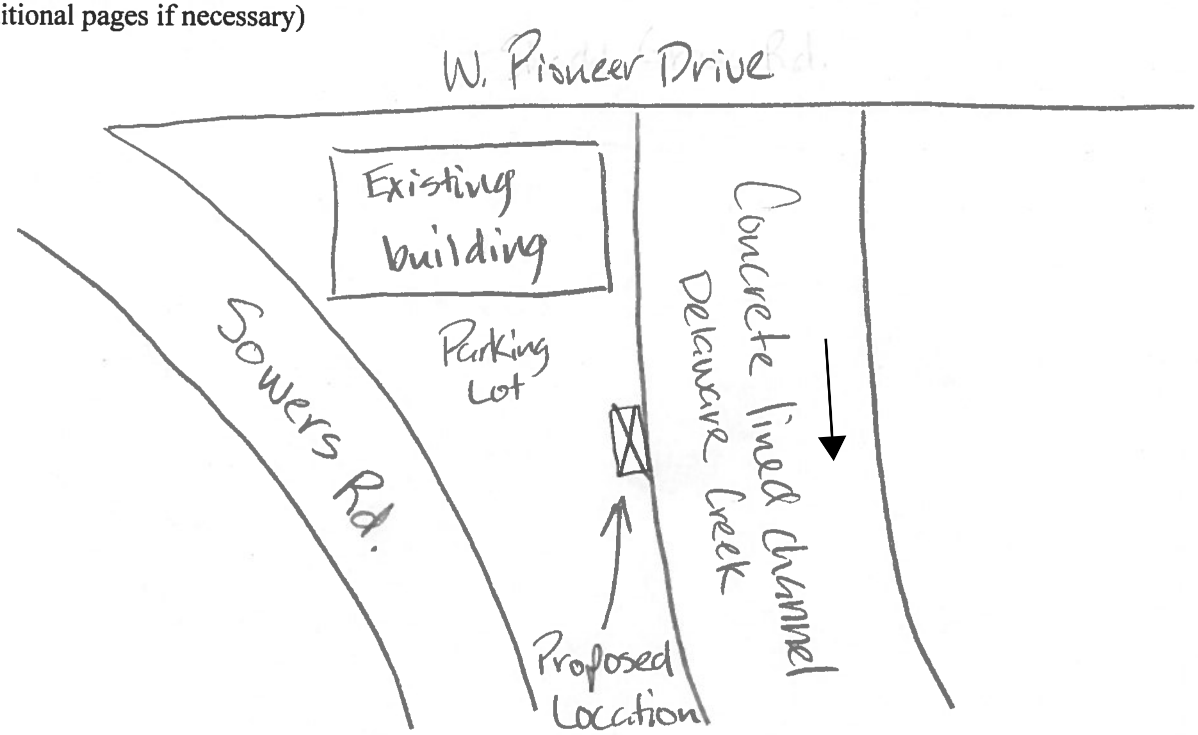
Other Site Features of Importance:

Notes:

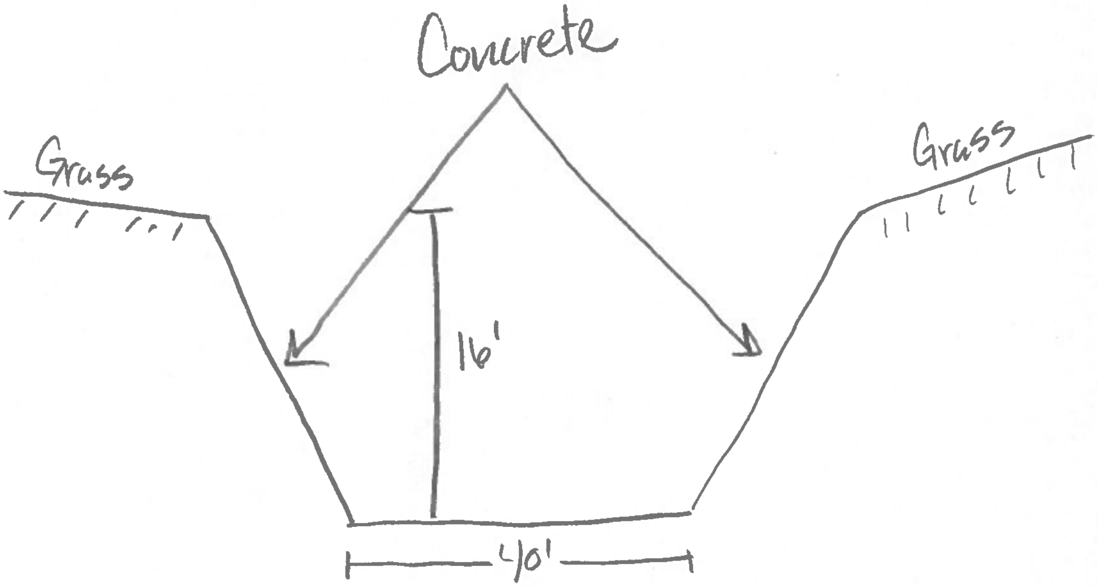
Provide Site Visit Attendee Name(s) and Company/Entity:
Jeff Shiflet - City of Irving
Ryan Deal - FNI

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: [✓ Upstream] / Downstream (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/13/17 Time: 10:35

Location Name/Number: IR 004 - East Oakdale Road @ Delaware Creek

Nearest Cross Street/Location Description: South Nursery Road

Entity (Circle One): Arlington Garland [✓ Irving] Mesquite NTTA Plano

GPS Latitude/Longitude: 32.794N , 96.936W

Receiving Water: West Fork Trinity

Data for locating automated samplers:

Ease of Installation ~ [✓ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: Slightly maintained grass area

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Adjacent to E. Oakdale Rd.

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Concrete lined channel

Vegetative Cover ~ High ~ Medium [✓ ~ Low]

Describe: No veg. in channel

Visibility from the Right-of-Way [✓ ~ High Visibility] ~ Low Visibility ~ None

Describe: Along E. Oakdale Rd.

Public Access ~ [✓ Yes] ~ No

Describe: Sidewalk + Residential access

Evidence of Public Use ~ [✓ Yes] ~ No (Circle all that apply, or describe)

Cans ~ Bottles ~ [✓ Paper] ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe: Paper debris, small amount

Evidence of Normal Surface Water Elevation ~ Yes ~ No ~ Depth <1 [✓ inches]/feet

Describe:

Perennial Flow Presence ~ High ~ Medium ~ [✓ Low] ~ Depth <1 [✓ inches]/feet

Describe:

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~60'
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~15-20'
(Recommended to be less than 25 feet)

Other Site Features of Importance: Stormwater outlet @ site

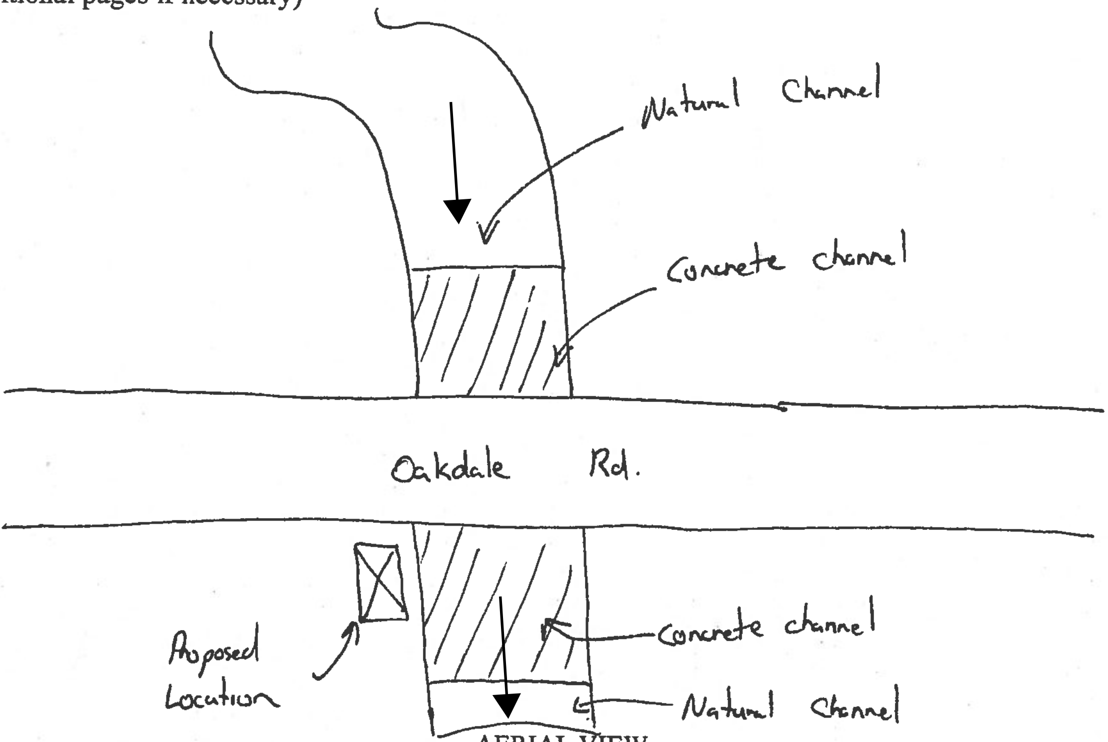
Notes: After speaking with Jeff Shiflet, he mentioned that this location has had theft of solar panels in the past. The city of Irving had to move the sampler off of the main road.

Provide Site Visit Attendee Name(s) and Company/Entity:

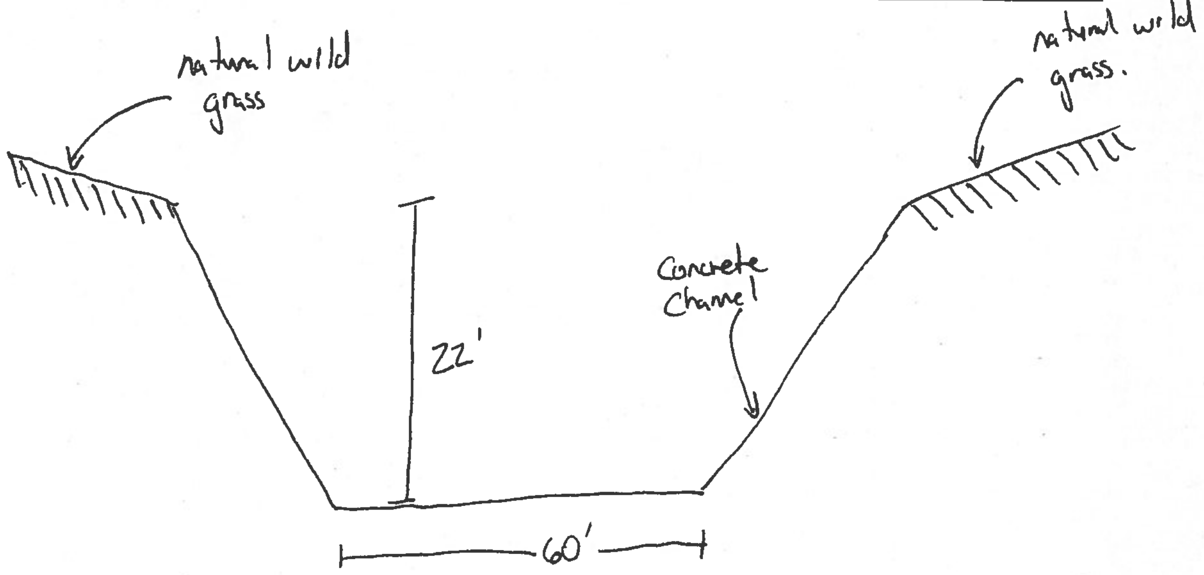
Jeff Shiflet - City of Irving
Ryan Deal - FNI

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / Downstream (Circle One)

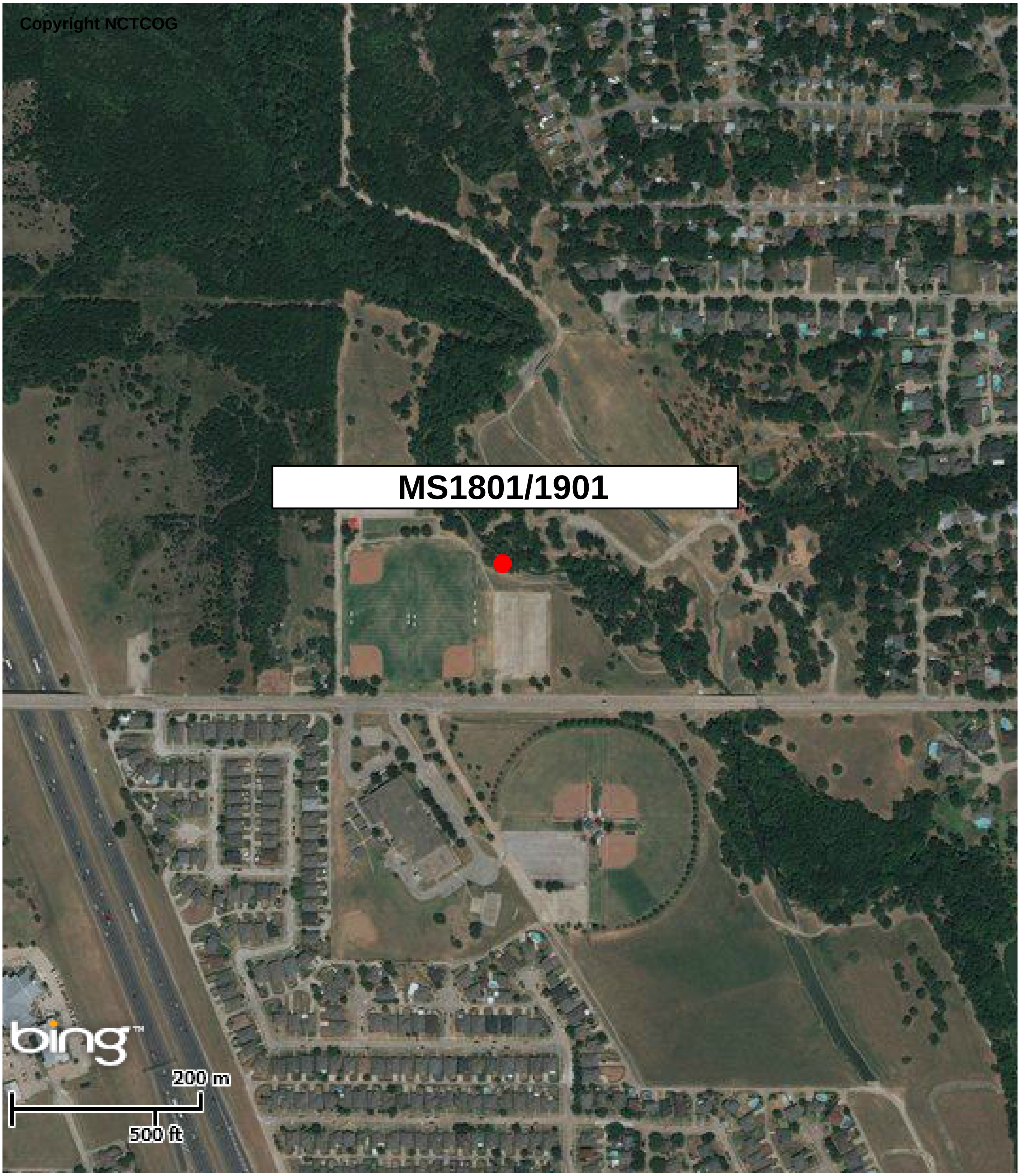
City of Mesquite

2018 - 2019 Sites

South Mesquite Creek and North Mesquite Creek Watersheds

North of New Market Road

MS1801/1901



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North Mesquite Creek at Edward’s Church

MS1802/1902

DFWMaps.com

DISCLAIMER
This data has been compiled for NCTCOG.
Various official and unofficial sources were used to gather this information. Every effort was made to ensure the accuracy of this data, however, no guarantee is given or implied as to the accuracy of said data.

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Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/9/17 Time: 0950 AM

Location Name/Number: MES-001 North of New Market Rd (Paschall Park)

Nearest Cross Street/Location Description: New Market Road

Entity (Circle One): Arlington Garland Irving [✓ Mesquite] NTTA Plano

GPS Latitude/Longitude: 32.75725, -96.6119444

Receiving Water: South Mesquite Creek

Data for locating automated samplers:

Ease of Installation ~ [✓ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: Pre-existing location. Explore platform option due to flooding

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Pre-existing top of bank location. Access via parking lot and trail to the south.

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Multi-lined; Shelter location side has concrete side slope other bank is natural. Bottom is a mix of concrete & rock + sediment. Moderately steep slope.

Vegetative Cover ~ High ~ Medium ~ [✓ Low]

Describe: Well maintained grass

Visibility from the Right-of-Way ~ [✓ High Visibility] ~ Low Visibility ~ None

Describe: None from road / High for park / trail patrons

Public Access ~ [✓ Yes] ~ No

Describe: Baseball park; Trail; Park users

Evidence of Public Use ~ Yes [✓ No] (Circle all that apply, or describe)

Cans ~ Bottles ~ Paper ~ Food Products ~ Rubble [✓ Wood] [✓ Brush] ~ Graffiti ~ Transient Community

Describe: [illegible] K.S typical instream floatables

Evidence of Normal Surface Water Elevation [✓ Yes] No ~ Depth ~6-15" inches/feet

Describe: Evidence of recent rain

Perennial Flow Presence ~ High ~ Medium [✓ Low] ~ Depth ~6-15" inches/feet

Describe: See above

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~20-25ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~10-11ft
(Recommended to be less than 25 feet)

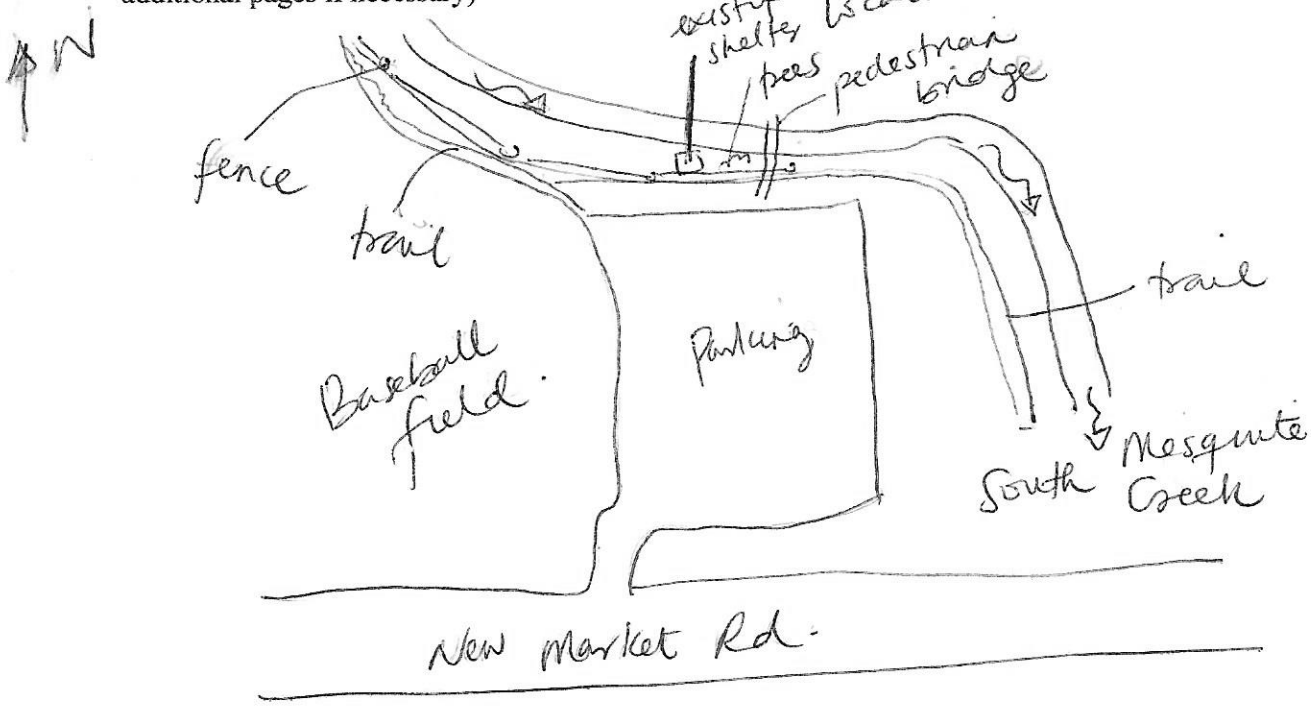
Other Site Features of Importance: Existing site with Shelters already in place.

Notes:

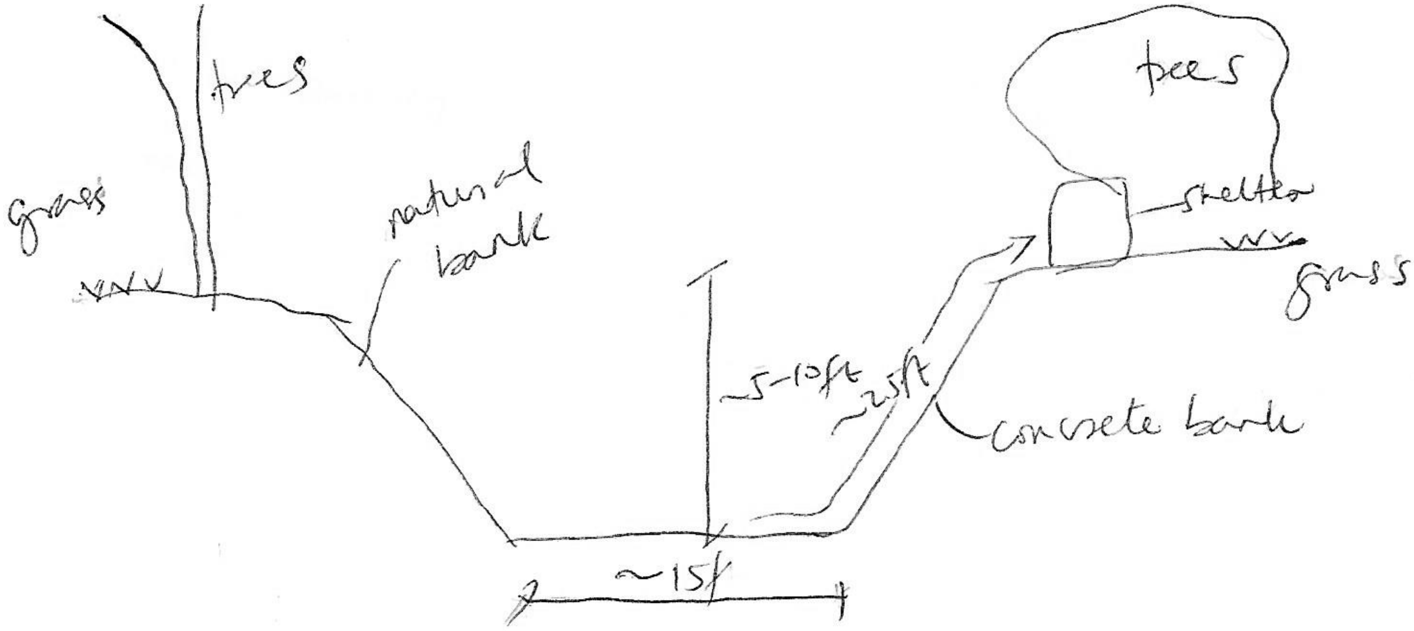
Provide Site Visit Attendee Name(s) and Company/Entity:
Robert Byrom (City of Mesquite)
Kofi Sam (ATKINS)

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/9/17 Time: 1011 AM

Location Name/Number: MES-002 N Mesquite Creek @ Edwards Church

Nearest Cross Street/Location Description: Edwards Church Road

Entity (Circle One): Arlington Garland Irving [✓ Mesquite] NTTA Plano

GPS Latitude/Longitude: 32.7321111°, -96.5505

Receiving Water: N Mesquite Creek

Data for locating automated samplers:

Ease of Installation ~ [✓ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: Pre-existing location. Explore platform option due to potential flooding

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Pre-existing top of bank location. north of foot bridge.
Access via north side / Park on main driveway east of creek.

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Natural channel; natural/earthen bank with
rock/mesh lined lower bank bottom.

Vegetative Cover ~ High ~ Medium ~ [✓ Low]

Describe: Low grass/brush

Visibility from the Right-of-Way ~ High Visibility ~ [✓ Low Visibility] ~ None

Describe: Visible from sidewalk

Public Access ~ [✓ Yes] ~ No

Describe: Sidewalk south of shelter location.

Evidence of Public Use ~ Yes ~ [✓ No] (Circle all that apply, or describe)

Cans ~ Bottles ~ Paper ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe: Instream wood/timber/logs and sediment

Evidence of Normal Surface Water Elevation ~ [✓ Yes] ~ No ~ Depth ~8"-12" inches/~~feet~~

Describe: moderate flow; recent rain

Perennial Flow Presence ~ High ~ Medium ~ [✓ Low] ~ Depth ________ inches/feet

Describe: See above

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~50ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~5-7ft
(Recommended to be less than 25 feet)

Other Site Features of Importance: Existing site with shelters already in place.

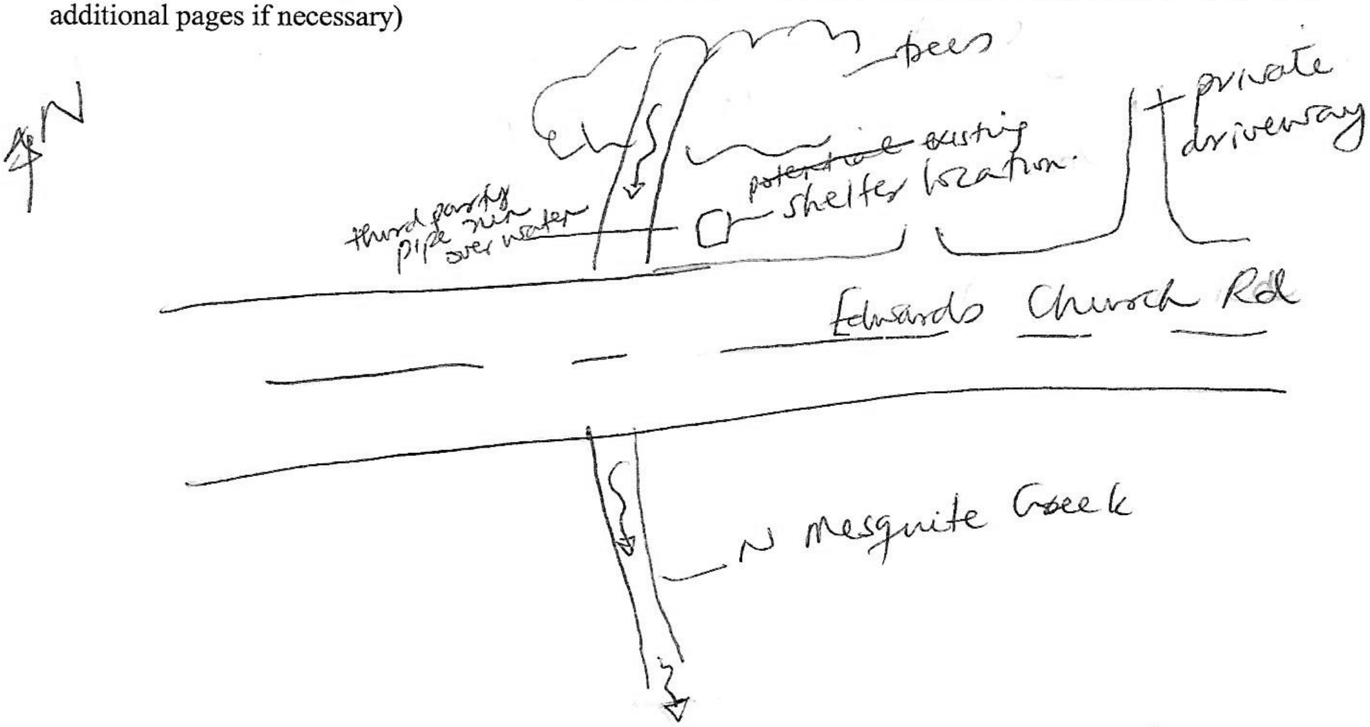
Notes:

Provide Site Visit Attendee Name(s) and Company/Entity:

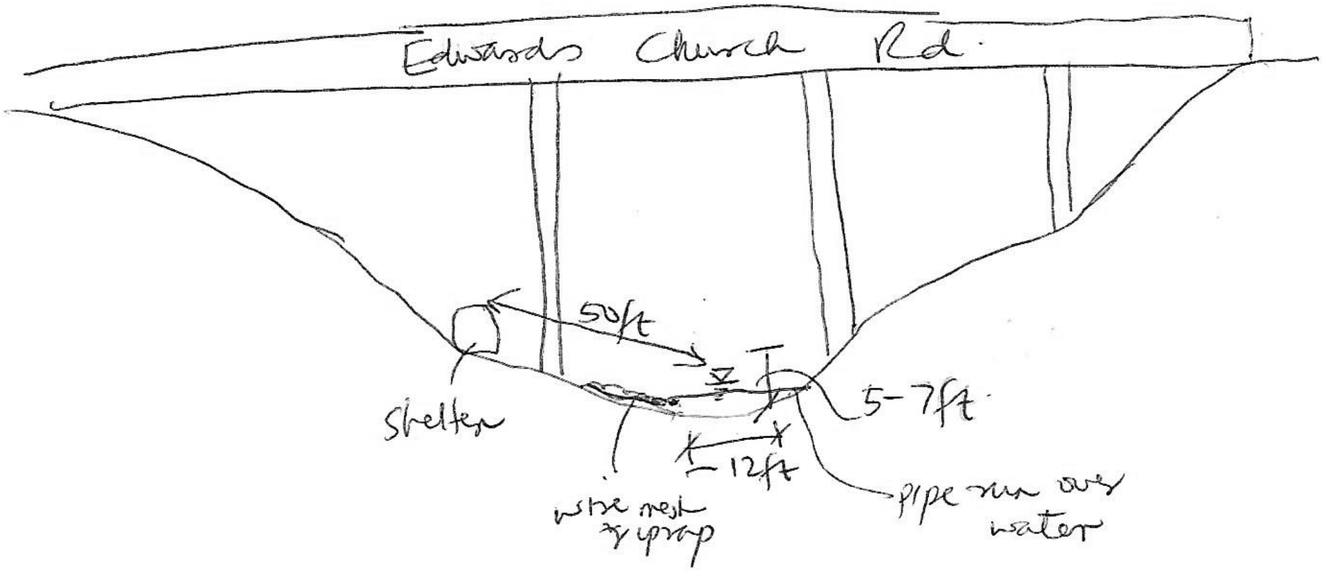
Robert Brown (City of Mesquite)
Kofi Sam (ATKINS)

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

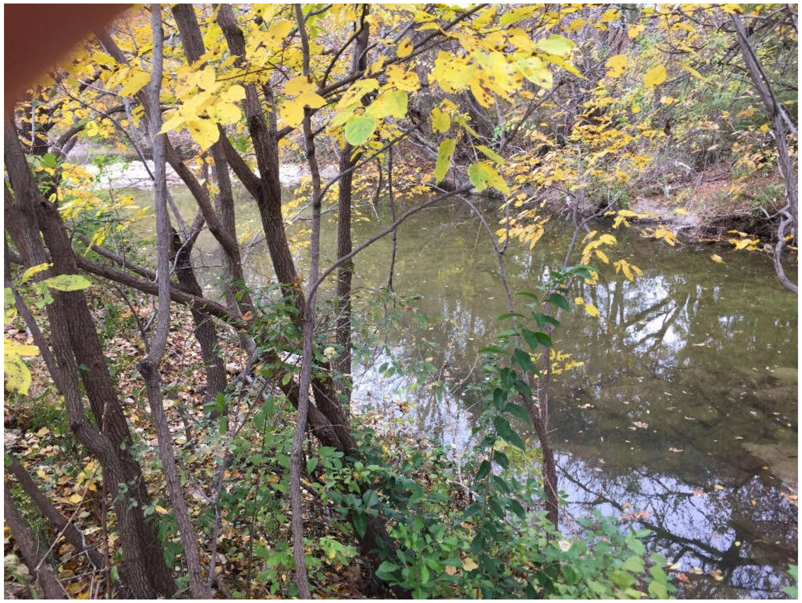
City of Plano

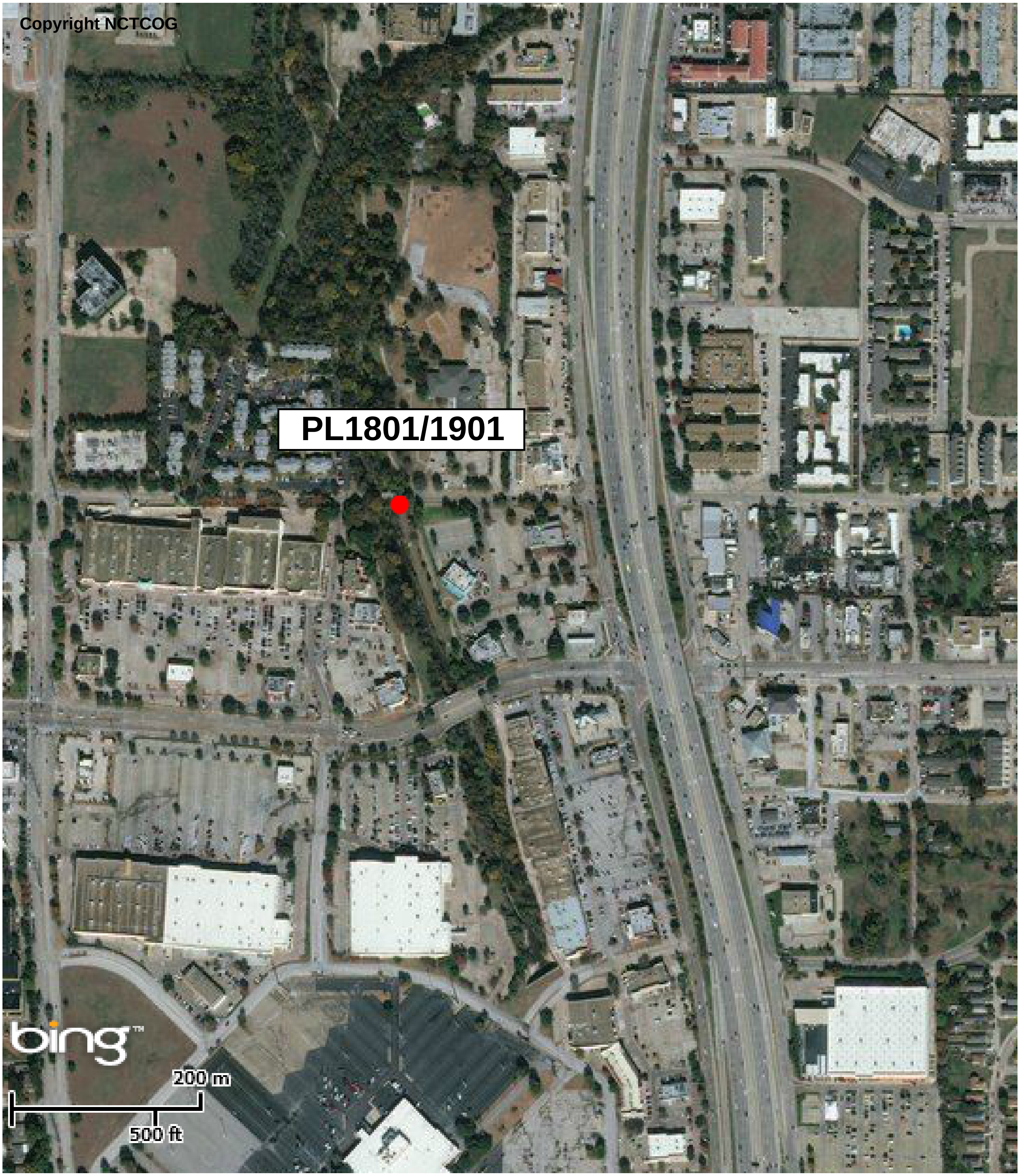
2018 - 2019 Sites

Spring Creek Watershed

Spring Creek at 16th Street

PL1801/1901





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Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/15/17 Time: 10:15 AM

Location Name/Number: Spring Creek @ 16th Street PL01B

Nearest Cross Street/Location Description: 16th Street

Entity (Circle One): Arlington Garland Irving Mesquite NTTA [✓ Plano]

GPS Latitude/Longitude: 33.021317° / -96.712406°

Receiving Water: Spring Creek

Data for locating automated samplers:

Ease of Installation [✓ Native or Existing Location / Bench] Need to construct Location / Platform / Base

Describe: Concrete base / platform on sanitary line (existing)

Ease of channel/sample area access and safety: Describe either [✓ YES] or NO

Describe: Harrington Park; parking lot access to site

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Natural, unlined, open channel with rock bottom

Vegetative Cover High Medium [✓ Low]

Describe: Some brush, manicured grass at top of bank, trees near stream

Visibility from the Right-of-Way [✓ High Visibility] ~~Low Visibility~~ CR None

Describe: Visible from roadway

Public Access [✓ Yes] No

Describe: ~~From trail~~ Adjacent to walk/bike trail

16th Street

Evidence of Public Use [✓ Yes] No (Circle all that apply, or describe)

[✓ Cans] Bottles [✓ Paper] Food Products [✓ Rubble] Wood [✓ Brush] [✓ Graffiti] Transient Community

Describe: Trash present under bridge and in adjacent areas

Evidence of Normal Surface Water Elevation [✓ Yes] No Depth ~1 inches/[✓ feet]

Describe: Uniform depth under bridge crossing

Perennial Flow Presence High [✓ Medium] Low Depth ~1 inches/[✓ feet]

Describe: Uniform flow near proposed location

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water 30 ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample 20 ft
(Recommended to be less than 25 feet)

Other Site Features of Importance:

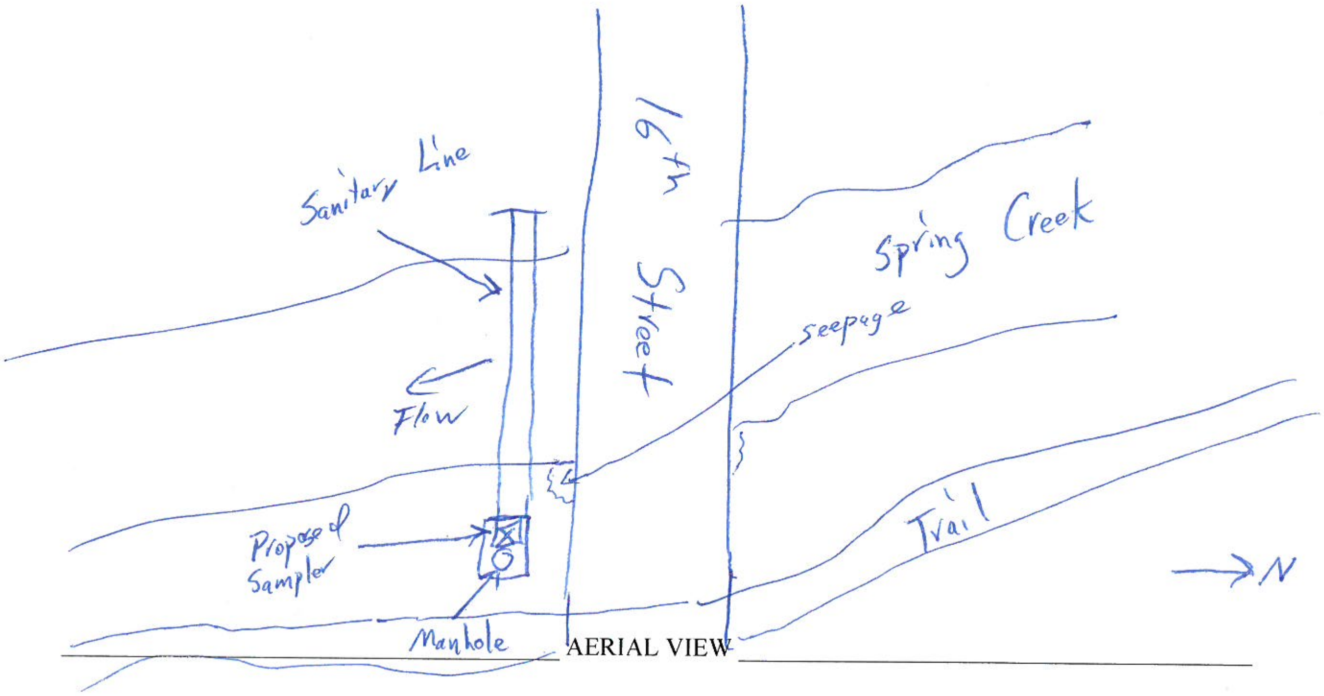
Notes: Evidence of overflow event from sanitary manhole (stains on manhole); seepage occurring under bridge

Provide Site Visit Attendee Name(s) and Company/Entity:

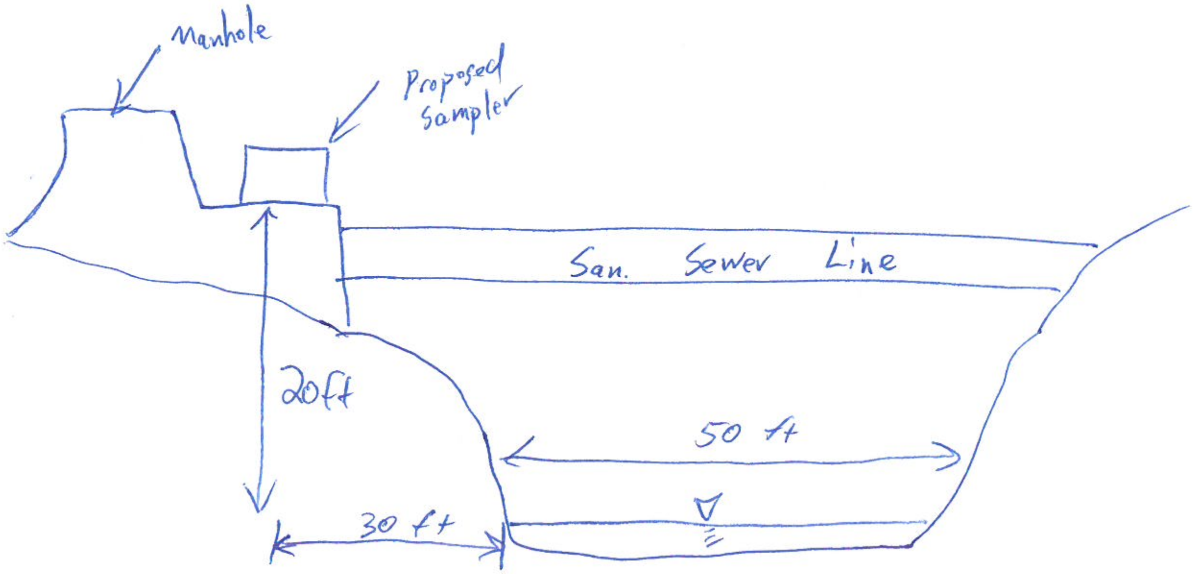
Chad Richards - Atkins
Mayra Lopez - NCTCOG
Heather Firn - City of Plano

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

NTTA

2018 - 2019 Sites

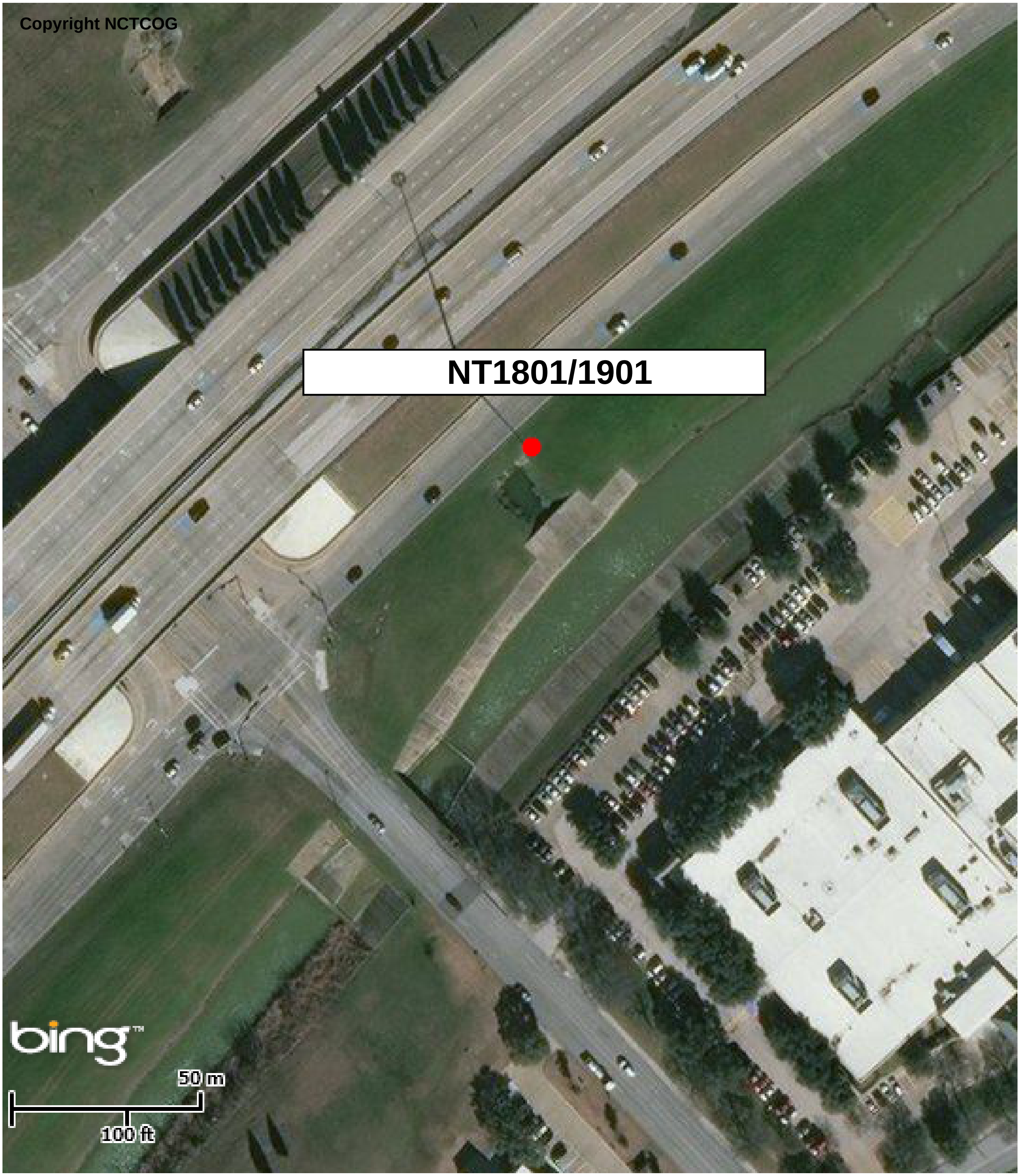
Cottonwood Branch – Hackberry Creek and Cottonwood Creek – Mountain Creek Lake Watersheds

Unnamed Tributary at SH161 N of Gateway Drive

NT1801/1901

North Central Texas
Council of Governments

DFWMaps.com



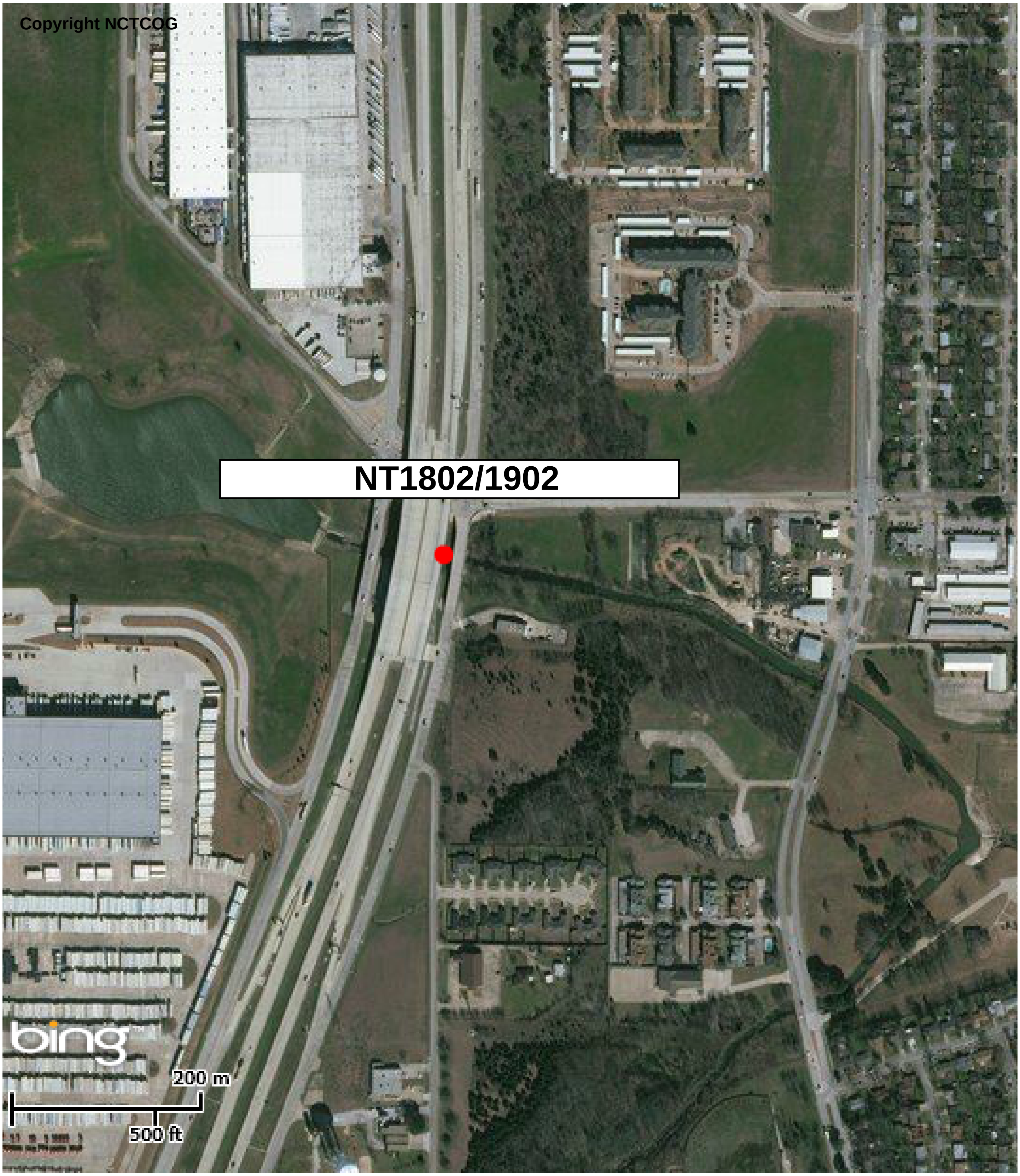
North Central Texas
Council of Governments

DFWMaps.com

N

Cottonwood Creek at SH161 S of Dickey Road

NT1802/1902



North Central Texas
Council of Governments

DFWMaps.com

N

North Central Texas
Council of Governments

DFWMaps.com

N

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/3/17 Time: 1258 PM

Location Name/Number: NTTA-001B

Nearest Cross Street/Location Description: PGBT @ North of Gateway Dr

Entity (Circle One): Arlington Garland Irving Mesquite [✓ NTTA] Plano

GPS Latitude/Longitude: 32.889808, -96.980065

Receiving Water: Unnamed Tributary to Hackberry Creek

Data for locating automated samplers:

Ease of Installation ~ [✓ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: level ground on top of bank

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Park on grass adjacent to culvert or in parking lot south of location and walk to site.

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: 4-~~box~~ pipe culvert apron with concrete bottom & sides serves as forebay into concrete lined trib to Hackberry Creek

Vegetative Cover ~ High ~ Medium ~ [✓ Low]

Describe: Well maintained grass cover

Visibility from the Right-of-Way ~ [✓ High Visibility] ~ Low Visibility ~ None

Describe: Vehicular traffic visibility

Public Access ~ [✓ Yes] ~ No

Describe: Vehicular traffic visibility

Evidence of Public Use ~ Yes [✓ ~ No] (Circle all that apply, or describe)

Cans ~ Bottles ~ Paper ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe: No sign of public use

Evidence of Normal Surface Water Elevation [✓ ~ Yes] ~ No ~ Depth 1" inches/feet

Describe: 1" depth on concrete apron drops to about 2' forebay

Perennial Flow Presence ~ High ~ Medium [✓ ~ Low ~] Depth 1"-2' inches/feet

Describe: See above

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ~15ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~5ft
(Recommended to be less than 25 feet)

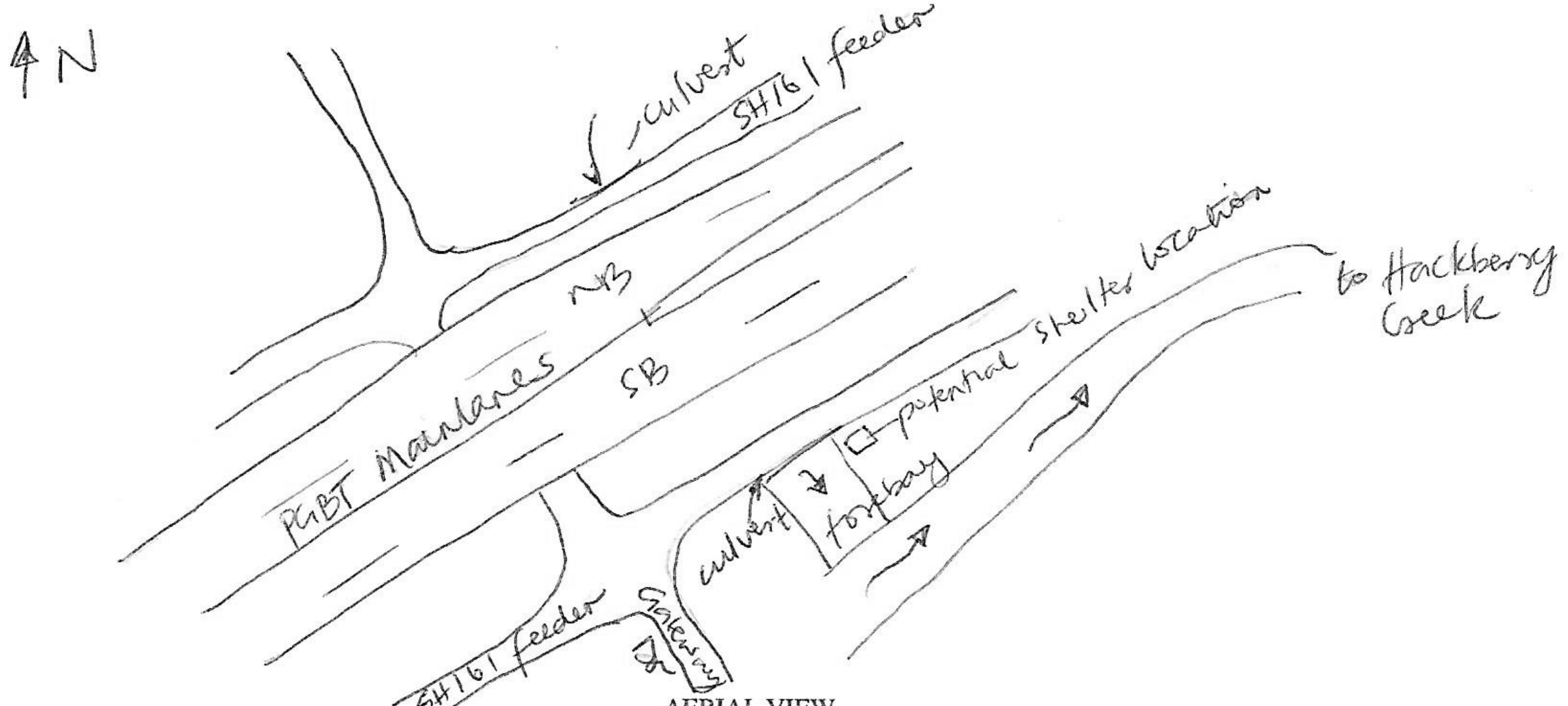
Other Site Features of Importance:

Notes:

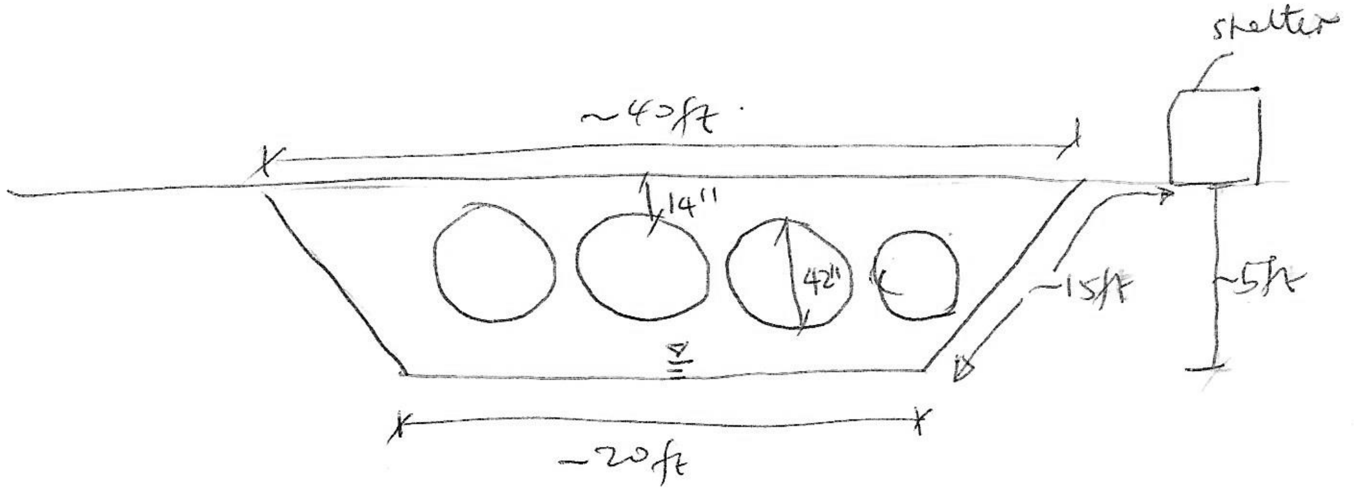
Provide Site Visit Attendee Name(s) and Company/Entity:
Moss Ferrell (VRX) On behalf of NTTA
Kofi Sam (ATKINS)

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: [✓ Upstream] Downstream (Circle One)

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date: 11/3/17 Time: 1124 AM

Location Name/Number: NTTA-002

Nearest Cross Street/Location Description: PGBT @ South of Dickey Rd

Entity (Circle One): Arlington Garland Irving Mesquite [✓ NTTA] Plano

GPS Latitude/Longitude: 32.728181, -97.01946

Receiving Water: Cottonwood Creek

Data for locating automated samplers:

Ease of Installation ~ [✓ Native or Existing Location / Bench] ~ Need to construct Location / Platform / Base

Describe: Level ground; south of Creek; east of gravel swale Explore bench

Ease of channel/sample area access and safety: ~ Describe either [✓ YES] or NO

Describe: Park in paved area south of proposed location next to gravel swale

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: Natural grass lined channel with rocks in bottom

Vegetative Cover ~ High ~ Medium ~ [✓ Low]

Describe: Low at top of bank; some medium brush in channel; poison ivy dotted on bank

Visibility from the Right-of-Way ~ High Visibility ~ [✓ Low Visibility] ~ [✓ None]

Describe: Not visible to vehicular traffic but to transient community

Public Access ~ [✓ Yes] ~ No

Describe: See public use

Evidence of Public Use ~ [✓ Yes] ~ No (Circle all that apply, or describe)

[✓ Cans] ~ Bottles ~ [✓ Paper] ~ Food Products ~ Rubble ~ [✓ Wood] ~ [✓ Brush] ~ Graffiti ~ [✓ Transient Community]

Describe: typical instream floatables plus a transient person sleeping under bridge

Evidence of Normal Surface Water Elevation ~ [✓ Yes] ~ No ~ Depth ~4" inches/feet

Describe: Rapid low flow within multiple forks that converge under feeder bridge. Dam structure/ reservoir upstream

Perennial Flow Presence ~ High ~ Medium ~ [✓ Low] ~ Depth ~4" inches/feet

Describe: See above.

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water 40-50ft
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ~10-15ft
(Recommended to be less than 25 feet)

Other Site Features of Importance:

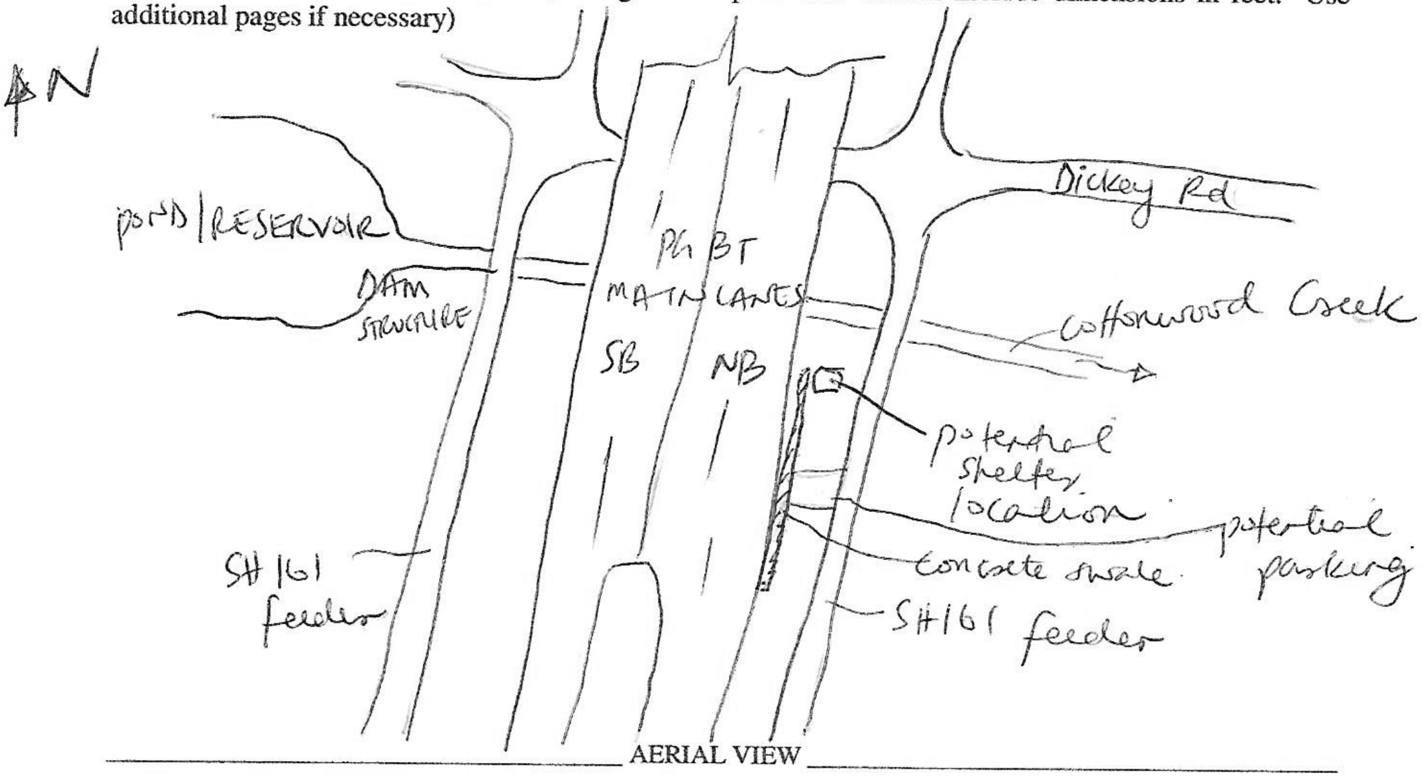
Notes:

Provide Site Visit Attendee Name(s) and Company/Entity:

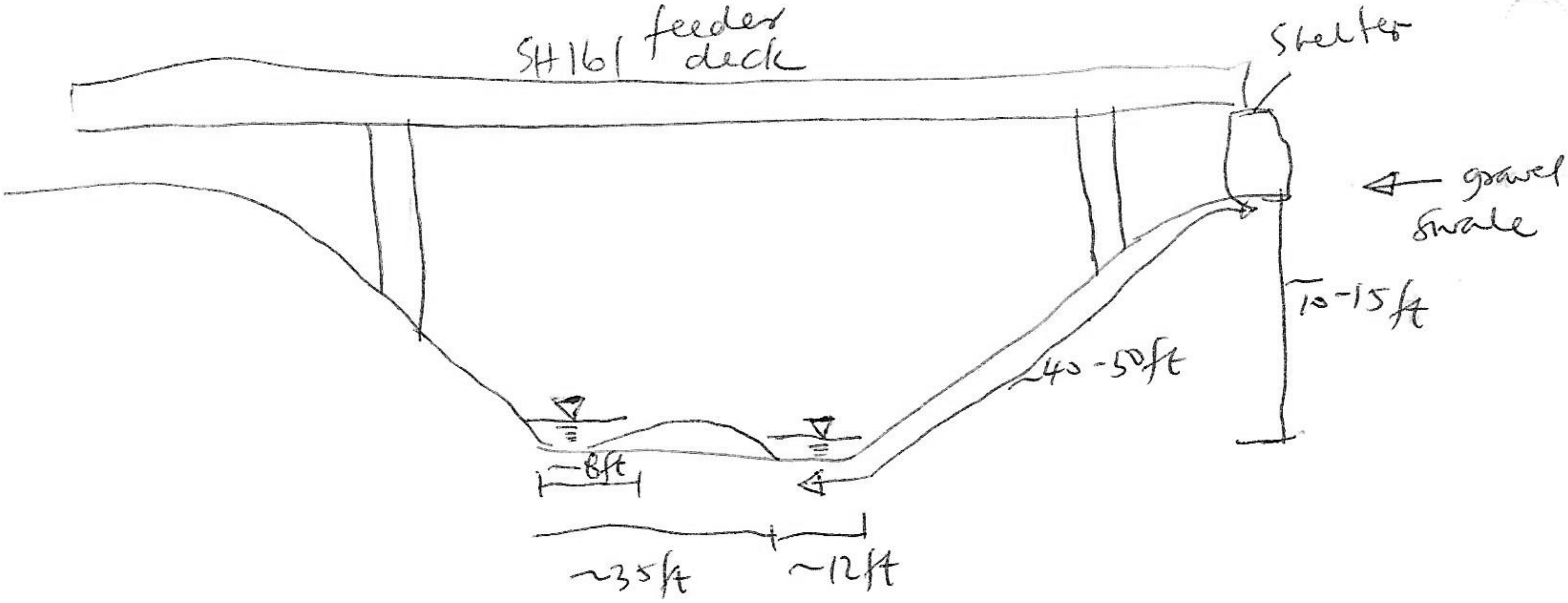
Moss Ferrell (VRX) On behalf of NTTA
Kofi Sam (ATKINS)

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)



AERIAL VIEW



CROSS SECTION

Facing: Upstream / [✓ Downstream] (Circle One)

Appendix B

Vendor Literature

Isco Product Data

Isco 6712C Compact Portable Sampler

Isco's 6712C Compact Portable Sampler delivers the advanced capabilities of our industry standard 6712 Sampler in a smaller package, allowing use where full-size samplers won't fit. Like the full-size 6712, the compact version uses Isco's advanced 6700 Series Controller, a device that allows you to select from a variety of programming modes, assuring the most suitable routine for your application. Programming is fast and simple, with on-line help just a key stroke away.

New!
SDI-12
Interface

The environmentally-sealed 6712 controller delivers maximum accuracy and easily handles all of your sampling applications, including:

- wastewater effluent
- stormwater monitoring
- CSO monitoring
- permit compliance
- pretreatment compliance

In the Standard Programming Mode, the controller walks you through the sampling sequence step-by-step, allowing you to choose all parameters specific to your application. Selecting the Extended Programming Mode lets you enter more complex programs.

This comparison photo, showing the 6712C with mini base (left) and Isco's full-sized Portable Sampler (right), illustrate the broad scope of sampler configurations Isco offers to suit your particular sampling needs.

An optional telephone modem allows programming changes and data collection to be performed remotely, from a touch-tone phone. It also has dial-out alarm features.

Versatile, Tough, and Reliable

A tapered design and narrow 18-inch (45.7 cm) diameter allows use in small or offset manholes. Choose from five bottle configurations to suit a variety of sampling routines.

Isco's 6712C Compact Portable Sampler carries a NEMA 4X, 6 (IP67)corrosion-proof rating for submersible, watertight, dust-tight,and corrosion-resistant service.

Superior capability, rugged construction, and compact size, make this sampler ideal for size-restricted applications.

All 6712 Samplers share the following features:

Advanced Delivery System

The 6712's peristaltic pump delivers samples at the EPA-recommended velocity of 2 ft/sec., even at head heights of 26 feet. At a head height of 3 feet, line velocity is 3 ft/sec. No other automatic sampler achieves this level of performance!

Our patented* pump revolution counter tells you when tubing should be replaced. Changing tubing is a snap; there are no pump covers, collars or tools to slow you down. An exclusive safety interlock removes power from the pump when it's opened.

Step-by-Step Programming

This feature walks you through the sampling sequence and allows you to choose all parameters specific to your application:

- When to start
- What volume to collect
- How to distribute samples
- If samples are to be time- or flow-paced.

You can easily enter complex programs to suit your unique needs. Available routines include:

- Pause and resume for intermittent discharge flow monitoring
- Sampler pacing by time, non-uniform time, flow or external event
- Random interval sample collection

Convenient Data Retrieval

Every 6712 Sampler is also a powerful data logger. Sampling, flow, rainfall, and other water quality data can be stored in its 512 KB memory.

Data may be retrieved directly into a Flowlink® 4 equipped PC in three ways:

- Via cable connection
- Remotely, via Isco's 2102 Wireless Communication System
- By phone, using our optional built-in modem

SDI-12 Interfacing

The 6712 functions as a SDI-12 logger and connects to any sensor that fully implements the protocol standard.

↑ SDI-12 DATA:
pH0 TEMP0 DO0 COND0
05DATA0
↓

Display window showing SDI-12 connection status.

In addition, Isco has defined extended commands to enable "plug and play" communications and ease of programming. These commands are implemented by the sensor manufacturer. Data are identified and logged by their specific type.

Expand your monitoring capabilities with these products and accessories.

Contact Isco or your Isco Representative to receive specific literature and prices on the following items.

Telephone Modem

A factory-installed option that lets you set up and make programming changes, or collect data from your 6712 sampler from the comfort of your office.

581 RTD (Rapid Transfer Device)

Slim enough to fit in your shirt pocket, yet rugged enough to withstand submersion, the 581 RTD lets you quickly retrieve and transfer data without taking your laptop computer into the field.

ProPak™ Disposable Sample Bags

Isco's patented ProPak bags eliminate the expense of washing and storing bottles, while taking away worries about contamination from previous samples. The bags are available with a 1000 ml capacity, or in a 2-gallon version for composite sampling.

Flowlink Software

Isco's advanced Flowlink® 4 for Windows Data Management Software harnesses the power of Microsoft Windows® to retrieve, import, compare, and analyze data, generate advanced charts and graphs, create comprehensive reports, and more.

700 Series Modules

Our 700 Series Modules let you adapt your 6712 sampler for a variety of jobs. These compact modules are environmentally sealed and may be added to your 6712 system at any time.

701 – pH and Temperature Module

Combines accurate pH and temperature monitoring in one module. It will also activate your 6712 Sampler at a user-elected pH or temperature range.

710 – Ultrasonic Flow Module

Uses our field-proven ultrasonic level sensor that doesn't require submersion in the flow stream.

720 – Submerged Probe Flow Module

Provides accurate measurement at sites where wind, steam, foam, turbulence, or air temperature fluctuations exist. Suitable for small channels, it accurately senses pressure even when covered with silt and sand.

730 – Bubbler Flow Module

Get the dependability and accuracy of Isco bubbler flow meters in a miniaturized package. The 730 is unaffected by changing stream conditions, and level measurement remains accurate despite temperature fluctuations or exposure to harsh chemicals.

750 – Area Velocity Flow Module

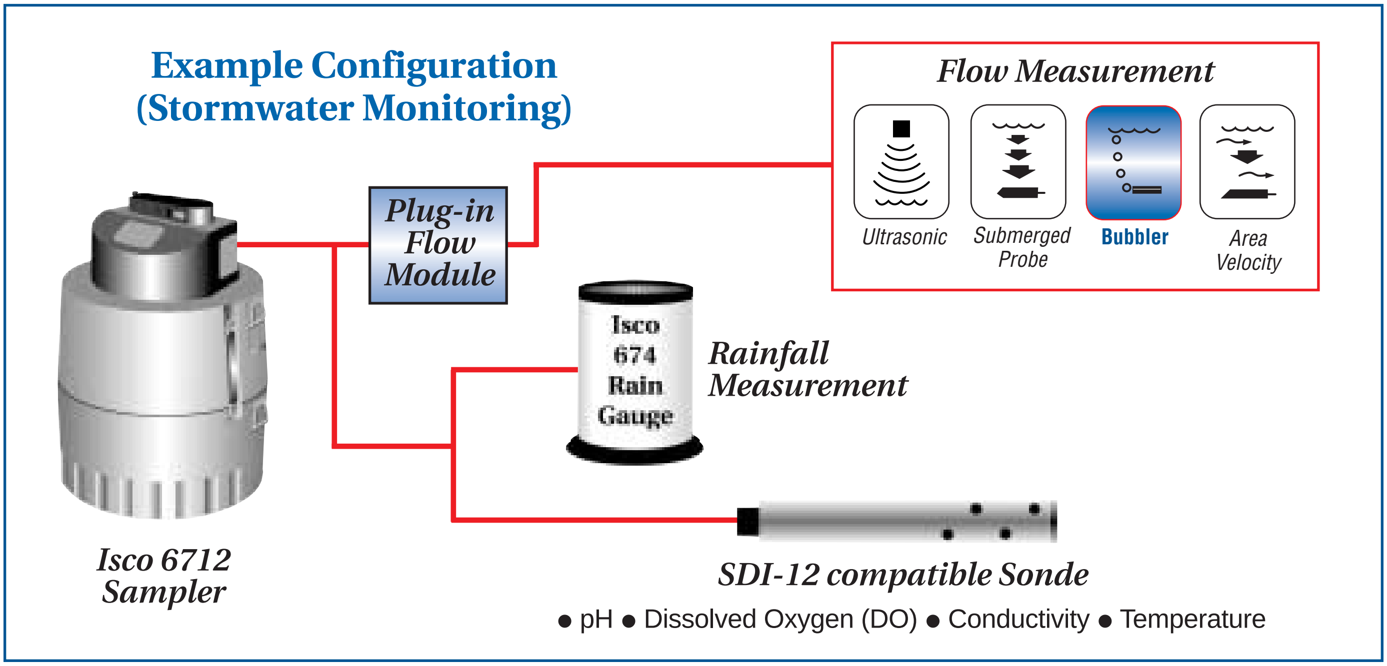
Gives greater accuracy where weirs and flumes are not practical, and where submerged, full pipe, surcharged, and reverse flow conditions may occur. And, you don't have to estimate the slope and roughness of the channel.

780 – Smart 4-20 Module

Add intelligence to a simple analog signal. Flow rates are displayed in actual volume units, not merely a percent of full scale. Any linear 4-20 mA input can be characterized by using the 780. The information can be stored and retrieved for later analysis.

Integrated Water Monitoring

Isco 6712 Samplers feature “plug and play” connection with SDI-12 compatible measuring devices - including multi-parameter sondes from leading manufacturers. Combined with the 6712’s standard 512 KB of memory, enough for more than 200,000 stored readings. SDI-12 networking gives you great flexibility for logging environmental data, and for “smart sampling” event notification, triggered on any combination of up to 16 inputs.



Isco 6712C Compact Portable Sampler Specifications

Sampler

Height	27.6 in.	70.1 cm
Diameter	17.7 in.	45.1 cm
Weight (Dry/Less Battery)	31 lbs.	14 kg
Material	High-strength ABS plastic outer shell Stainless steel hardware	
Power Requirements	12 VDC	

Pump

Intake Purge	Adjustable air purge before and after each sample.	
Tubing Life Indicator	Provides a warning to change pump tubing.	
Intake Suction Tubing		
Length	3 to 99 ft.	1 to 30 m
Material	Vinyl or Teflon® lined	
Inside Dimension	⅜ in.	1 cm
Pump Tubing Life	Typically 1,000,000 pump counts	
Maximum Suction Lift	28 ft.	8.5 m
Typical Repeatability	±5 ml or ±5% of the average volume in a set	
Typical Line Transport Velocity at head heights of:		
3 ft. (0.9 m)	3.0 ft./s	0.91 m/s
10 ft. (3.1 m)	2.9 ft./s	0.87 m/s
15 ft. (4.6 m)	2.7 ft./s	0.83 m/s
Liquid Presence Detector	Non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head heights.	

Controller

Weight	13 lbs.	5.9 kg
Dimensions	10.3 x 12.5 x 10 in.	26 x 31.7 x 25.4 cm
Operational Temperature	32° to 120°F	0° to 49°C
Enclosure Rating	NEMA 4X, 6	IP67
Program Memory	Non-volatile ROM	
Flow Meter Signal Requirements	5 to 15 volt DC pulse or 25 millisecond isolated contact closure.	
Number of Programmable Composite Samples	1 to 999 samples.	
Real Time Clock Accuracy	1 minute per month, typical	

Software

Sample Frequency Selection	1 minute to 99 hours 59 minutes, in 1 minute increments. Non-uniform times in minutes or clock times 1 to 9,999 flow pulses
Sampling Modes	Uniform time, non-uniform time, flow. *(Flow mode is controlled by external flow meter pulses.)*
Programmable Sample Volumes	10 to 9,990 ml in 1 ml increments
Sample Retries	If no sample is detected, up to 3 attempts; user selectable
Rinse Cycles	Automatic rinsing of suction line up to 3 rinses for each sample collection
Program Storage	5 sampling programs
Sampling Stop/Resume	Up to 24 real time/date sample stop/resume commands
Controller Diagnostics	Tests for RAM, ROM, pump display, and distributor

Ordering Information

Description	Part Number
6712C Compact Portable Sampler Includes controller with 512 KB RAM, top cover, center section, base, distributor arm, instruction manual, pocket guide.	**68-6710-071**
6712C Compact Portable Sampler with Mini Base (Includes items described above)	**68-6710-141**

Note: *Power source, bottle configuration, suction line, and strainer must be ordered separately. Other options and accessories are also available. Contact Isco or your Isco Representative for complete information.*

The 6712 Controller is an SDI-12 logger. Manual pump operations are now located on the front panel keys.

The 6712C Compact Portable Sampler features Isco's exclusive bottle carrier to make bottle changing and transportation a snap.

www.isco.com

Isco, Inc.
4700 Superior St.
Lincoln, NE 68504 USA
Phone: (402) 464-0231
USA & Canada: (800) 228-4373
Fax: (402) 465-3022
E-Mail: info@isco.com

Isco Flowlink® 5 Software

Isco's Flowlink is the premier flow data management software. Flowlink 5's advanced analysis, editing, and reporting, assure continued industry leadership.

Easy instrument configuration

Set up the following Isco instruments
— on-site or remotely:

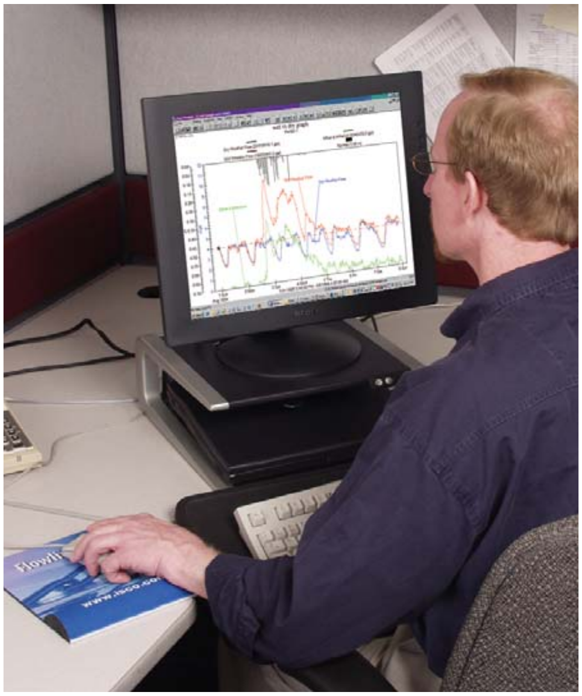
- ▶ 2100 Series Flow Modules
- ▶ 4100 Series Flow Loggers
- ▶ 4200 Series Flow Meters
- ▶ 676 Logging Rain Gauge systems

Enhance battery life by scheduling specific "run times" for communication modules.

Save configuration time by cloning when a flowmeter is replaced, or conditions are similar at another site.

Data handling options

Download data on site to your laptop PC, Isco 581 Rapid Transfer Device (RTD), or Isco 2101 Field Wizard.



Collect data from 2100 Series modules remotely via an Isco 2102 Wireless Module, 2103 Telephone or 2103c Cell Phone Modem.

Collect data from Isco 4200 Series Flow Meters and 6700 Series Samplers with voice modems.

Automate data collection.

Display default graphs immediately after data retrieval to quickly assess site conditions.

Import CSV-formatted data from non-Isco instruments.

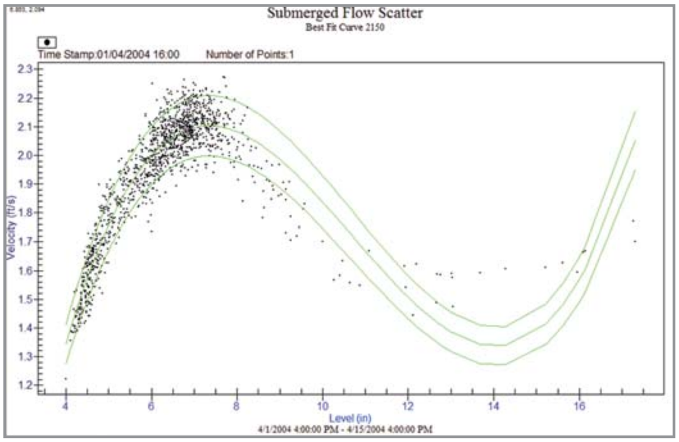
Convert Flowlink 4 files to Flowlink 5.

Archive data to a zipped file on a network drive and back up your database to insure against loss.

Data Presentation

- Drag and drop data onto graphs and tables.
- Generate graphs with up to four panes, with multiple data types in each pane.
- Display rainfall.
- Display sample events.
- Display scatter plots. Generate a best-fit curve with limits for analysis.
- Add text boxes to label events.
- Generate vertical lines that span all panes for accurate values of different parameters at specific times.
- Generate horizontal lines to distinguish points outside limits.

Scatter Plot

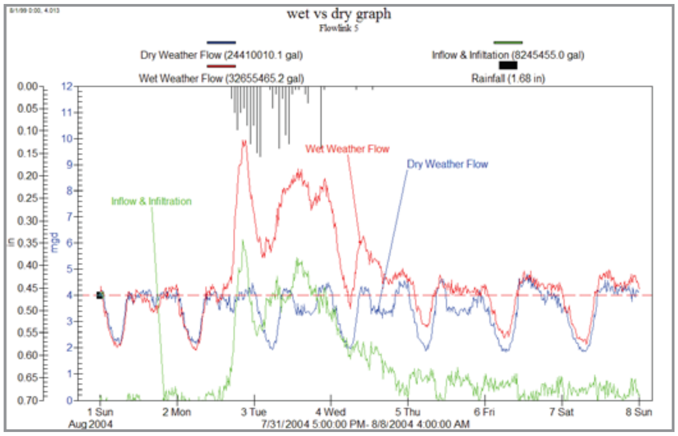


Generate flow channel performance pictures. Add upper and lower limits to indicate fitness of data by a percentage of offset, or test fitness of data using Manning Formula coefficients.

Advanced Data Analysis

- Calculate average, minimum, maximum, and total accumulated values.
- Compare data from multiple sites.
- Use series formulas to know the relation between sites or parameters.
- Zoom vertically and horizontally.
- Generate reference curves for wet weather analysis or problem identification.
- Compare flows using the continuity equation and Manning formula.

Wet vs. Dry Comparison



Create reference curves (blue line) for comparisons. Import rain data (inverted from top of graph) to help see the relationship between rainfall and I&I.

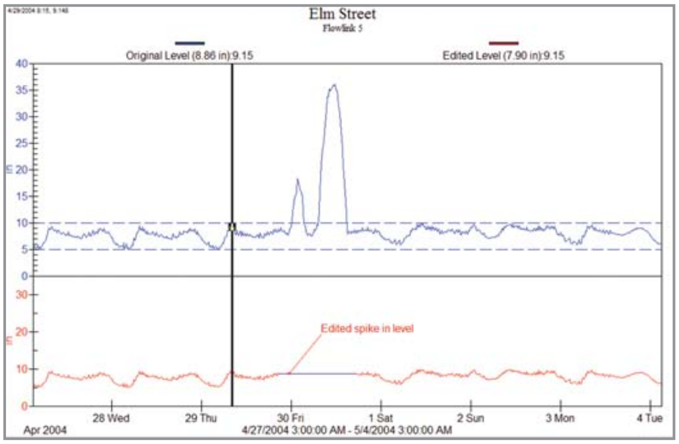
Editing Capability

External noise, site conditions, etc, can adversely affect data quality. Also, data from flow meters lacking Isco's exceptional stability can be corrected for calibration or temperature drift.

- ▶ Edit data with constant offset, fixed offset, proportional, time, or auto-correct functions.
- ▶ Edit data values by dragging them to correct values or by selecting multiple data values in a block, then applying corrections.
- ▶ Adjust scatter plot data within limits, or to the centerline of the best fit curve.
- ▶ View changes in a graph or table after editing.
- ▶ Copy, paste, cut, and insert.
- ▶ Show modified data in a different color.

.

Edited Graph

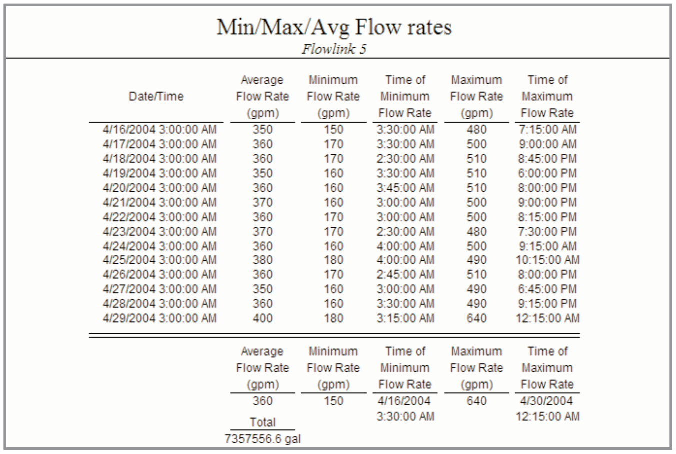


The erroneous spikes shown above would skew calculations. Simply highlight them and click "auto-correct".

Reporting

- ▶ Include Flowlink graphs and tables in Microsoft Word®, Excel®, and PowerPoint® with object linking and embedding (OLE).
- ▶ Exported into CSV format for analysis in spreadsheet programs. Export graphs and tables in HTML or PDF format.
- ▶ Automatically retrieve data, print graphs and tables, import/export data, and run command-line driven programs.

Printable Table



Min/Max/Avg Flow rates

Flowlink 5

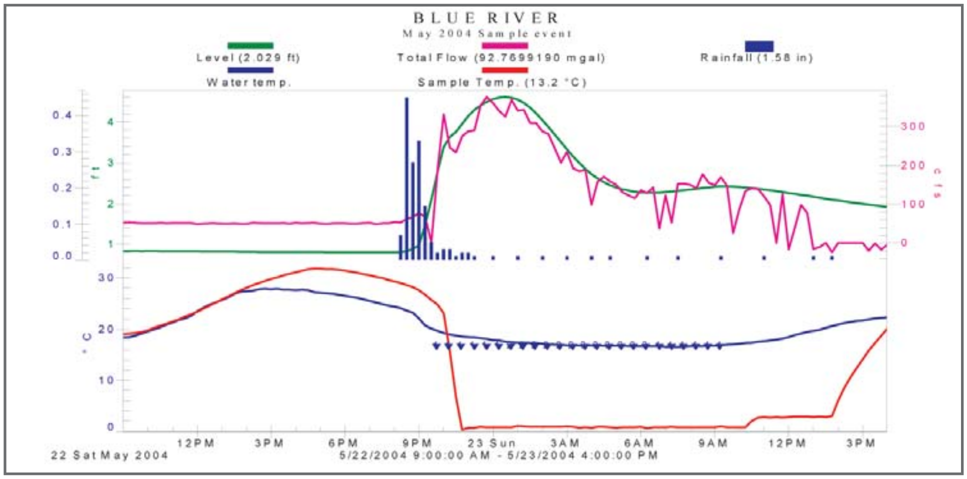
Date/Time	Average Flow Rate (gpm)	Minimum Flow Rate (gpm)	Time of Minimum Flow Rate	Maximum Flow Rate (gpm)	Time of Maximum Flow Rate
4/16/2004 3:00:00 AM	350	150	3:30:00 AM	480	7:15:00 AM
4/17/2004 3:00:00 AM	360	170	3:30:00 AM	500	9:00:00 AM
4/18/2004 3:00:00 AM	360	170	2:30:00 AM	510	8:45:00 PM
4/19/2004 3:00:00 AM	350	160	3:30:00 AM	510	6:00:00 PM
4/20/2004 3:00:00 AM	360	160	3:45:00 AM	510	8:00:00 PM
4/21/2004 3:00:00 AM	370	160	3:00:00 AM	500	9:00:00 PM
4/22/2004 3:00:00 AM	360	170	3:00:00 AM	500	8:15:00 PM
4/23/2004 3:00:00 AM	370	170	2:30:00 AM	480	7:30:00 PM
4/24/2004 3:00:00 AM	360	160	4:00:00 AM	500	9:15:00 AM
4/25/2004 3:00:00 AM	380	180	4:00:00 AM	490	10:15:00 AM
4/26/2004 3:00:00 AM	360	170	2:45:00 AM	510	8:00:00 PM
4/27/2004 3:00:00 AM	350	160	3:00:00 AM	490	6:45:00 PM
4/28/2004 3:00:00 AM	360	160	3:30:00 AM	490	9:15:00 PM
4/29/2004 3:00:00 AM	400	180	3:15:00 AM	640	12:15:00 AM

Average Flow Rate (gpm)	Minimum Flow Rate (gpm)	Time of Minimum Flow Rate	Maximum Flow Rate (gpm)	Time of Maximum Flow Rate
360	150	4/16/2004 3:30:00 AM	640	4/30/2004 12:15:00 AM
Total				
7357556.6 gal				

Convert graphical data to tabular with one click. Statistical functions are summarized beneath each column. Flowlink scales tables to your printed page.

Sampler Compatibility

Integrate data from Isco's 6700 Series, or Avalanche samplers,
with flow meter data for comprehensive analysis and reporting.



Upper pane shows level, flow rate and rainfall. Lower pane shows events (blue triangles) for each sample, with stream water and sample temperatures. Conductivity, pH, dissolved oxygen, etc., can also be displayed.

Flowlink 5 Computer Requirements

Operating System	Microsoft Windows 98, NT, 2000, and XP	Disk Drive	CD ROM
Microprocessor	133 MHz Pentium® or equivalent	Monitor	SVGA, 800 x 600 resolution
RAM	32 Mbytes[1] (recommended)	Printer	Color (recommended)
Hard Drive	100 Mbytes free space available for program data[2] (recommended)	Communication	Serial or USB[3] port with Isco Interrogator Cable, Hayes ™ compatible telephone modem

[1] System must meet the minimum hardware requirements for the selected operating system.

[2] Estimate based on a database with 15 sites, each having 3 data sets (e.g., level, velocity, and flow rate), each set having a 15-minute reading interval, with the database archived every 6 months.

[3] Requires customer-supplied USB to RS-232 adapter/converter cable.

NOTE: A Flowlink 3 database can be opened in Flowlink 5 after conversion, using Isco's Site Converter software (included with Flowlink 5).

Water is life. Protect it.

Teledyne Isco, Inc.
4700 Superior Street
Lincoln, NE 68504 USA
Phone: (402) 464-0231
USA & Canada: (800) 228-4373
FAX: (402) 465-3022
e-Mail: info@isco.com
Internet: www.isco.com

Isco 730 Bubbler Flow Module

Bubbler level sensing provides the most accurate measurement

Isco 730 Bubbler Flow Modules use an internal air compressor to force a metered amount of air through a bubble line submerged in the flow channel. By measuring the pressure needed to force air bubbles out of the line, the water level is accurately determined. The 6700 Series or Avalanche Sampler then converts the level into flow rate.

The 730 provides accurate measurement in a variety of conditions. It is suitable for small channels, and it is not affected by wind, steam, foam or turbulence. And, because only the bubble tube contacts the flow, corrosive chemicals are not a problem. Automatic bubble line purging prevents clogging. The 730 also resists damage by lightning and debris, making it ideal for stormwater applications.

Automatic drift compensation makes Isco bubbler flow meters the most accurate level measurement technology. In standby applications, such as stormwater runoff monitoring, Automatic drift compensation also allows the 730 to maintain calibration for extended periods.

Applications

- Level and flow measurement in shallow streams, and/or where lightning and debris may occur
- Trigger sampling based on flow or level
- Flow-proportioned sample collection
- Treatment-capacity analysis
- River and stream gauging

Standard Features

- Bubbler line is unaffected by flow stream composition
- Automatic Drift Compensation provides high accuracy and maintains calibration in standby applications such as stormwater monitoring
- Built-in flow conversions for most applications, including weirs and flumes, Isco flow metering inserts, Manning formula, data points, or equation for special situations
- During the program’s operation, current flow and level values are viewable on the sampler’s LCD display
- All level data stored in the sampler is available for later retrieval, reporting, and graphing using Isco Flowlink® software

Simply plug in one of the environmentally-sealed modules to expand monitoring capabilities. They can easily be added or changed in the field.

Specifications

730 Module		
Size *(H x W x D)*	4.9 x 5.7 x 2.0 in	12.4 x 14.5 x 5.1 cm
Weight	1.5 lbs	0.7 kg
Material	Polystyrene	
Enclosure	NEMA 4X, 6	IP67
Power *(provided by 6700 Series Sampler)*	9 to 14V DC	
Program Memory	Non-volatile, programmable flash; can be updated via interrogator port on 6700 Series Sampler using a PC	
Level Measurement Data Storage Interval *(programmable through 6700 Series Sampler)*	1, 2, 5, 10, 15, or 30 minutes	
Operating Temperature	32° to 120°F	0° to 49°C
Storage Temperature	0° to 140°F	-18° to 60°C

Bubbler				
Range	0.01 to 10 ft.		0.003 to 3.05 m	
Level Measurement Accuracy *Linearity, Repeatability, and Hysteresis at 77 °F (25 °C)*	**Level***	**Error**	**Level***	**Error**
	0.1 to 5.0 ft	±0.005 ft	0.03 to 1.52 m	±0.002 m
	0.1 to 7.0 ft	±0.01 ft	0.03 to 2.13 m	±0.003 m
	0.1 to 10 ft	±0.035 ft	0.03 to 3.05 m	±0.011 m
Temperature Coefficient *Maximum error over compensated temperature range (per degree of temperature change)*	**Level***	**Error**	**Level***	
	0.01 to 5.0 ft	±0.0006 x level x temperature change from 77°F	0.003 to 1.52 m	±0.00108 x level x temperature change from 25°C
	0.01 to 10 ft	±0.0005 x level x temperature change from 77°F where level is measured in feet	0.003 to 3.05 m	±0.0009 x level x temperature change from 25°C where level is measured in meters
Automatic Drift Correction	After a 5-minute warm up period, zero level is corrected to ±0.002 ft. (±0.0006 m) at programmed intervals between 2 and 15 minutes			
Operating Temperature	32° to 120°F		0° to 49°C	
Compensated Temperature	32° to 140°F		0° to 60°C	

**Actual vertical distance between the end of the bubble tube and the liquid surface.*

Ordering Information

Description	Part Number
730 Bubbler Flow Module	**68-6700-050**
730 Accessories	
Flow Metering Inserts	
6 in. (150 mm) Insert	**68-3230-005**
8 in. (200 mm) Insert	**68-3230-006**
10 in. (250 mm) Insert	**68-3230-007**
12 in. (300 mm) Insert	**68-3230-008**

Teledyne Isco, Inc.
4700 Superior Street
Lincoln NE 68504 USA
Phone: (402) 464-0231
USA and Canada: (800) 228-4373
Fax: (402) 465-3022
E-Mail: info@isco.com
Internet: www.isco.com

Isco 674 Rain Gauge

Connects directly to 6712 and Avalanche™ Samplers, 4200 Flow Meters, and 4100 Flow Loggers

The Isco 674 Rain Gauge is a precision instrument that uses a tipping bucket design for rainfall measurement. It has an 8-inch diameter orifice and is factory-calibrated to tip at either 0.01 inch or 0.1 mm of rainfall. With a 674 Rain Gauge connected, an Isco flow meter or sampler will:

- ♦ Store rainfall data in internal memory for retrieval and analysis with Isco Flowlink® Software
- ♦ Activate sampling based on rainfall
- ♦ Plot graphs and print reports of rainfall data on the flow meter's built-in printer

A 674 rain gauge connected to an Isco 6712 or Avalanche sampler is ideal for collecting rainfall data as well as runoff-triggered samples at remote monitoring sites.

The 674 rain gauge features a precision tipping bucket and 3-point leveling system for easy setup.

Applications

- ♦ Stormwater runoff monitoring
- ♦ TMDL and Watershed surveys
- ♦ Inflow and infiltration studies
- ♦ cMOM and CSO/SSO programs (Sewer overflow monitoring and prevention)
- ♦ General rainfall measurement

Standard Features

- ♦ Three-point leveling and integral bubble level make it easy to align the rain gauge for maximum accuracy.
- ♦ Sapphire jewel bearings on the tipping bucket are spring-loaded to prevent damage to the bearings and ensure consistent operation over a wide temperature range.
- ♦ Screens cover all openings to prevent leaves, insects, and other debris from clogging the gauge.
- ♦ Included 50-foot cable connects directly to compatible Isco flow meters and samplers.

Isco 674 Rain Gauge Specifications	
Type:	Tipping bucket
Compatible equipment:	Isco 6700, 6712, and Avalanche Samplers, 4200 Series Flow Meters, 4100 Series Flow Loggers
Connect cable:	50 ft. (15.2 m), 2 conductor with 4-pin plug
Bearings:	Spring-loaded sapphire jewel
Orifice Diameter:	8 in. (20 cm)
Sensitivity:	English - 0.01 inch; Metric 0.1 mm
Accuracy:	English - ±1% at 2 in/hour; +3%/-4% up to 5 in/hour Metric - ±1.5% at 5 cm/hour; +3.5%/-9% up to 13 cm/hour
Capacity:	English – 22 inches/hour Metric – 38 cm/hour
Output Signal:	Contact closure of at least 50 millisecond duration
Switch Type:	Hermetically sealed magnetic proximity switch. Normally open, 200V DC, 0.5 A maximum.
Height:	13 in. (33 cm)
Diameter:	9.5 in. (24 cm) (at mounting base)
Weight:	10 lbs. (4.5 kg)
Operating Temperature:	32° to 140°F (0° to 60°C)
Storage Temperature:	-40° to 140°F (-40° to 60°C)

The 674 Rain Gauge connects to any 6700 Series or Avalanche Sampler, 4200 Series Flowmeter, or 4100 Series Flow Logger. Rainfall data logged on the host instrument can be analyzed with Flowlink 4 Software.

Ordering Information

The 674 rain gauge includes a 50 ft (15 m) cable for connection to an Isco 6700, 6712, or Avalanche Sampler, 4200 Series Flow Meter, or 4100 Series Flow Logger. Specify English or Metric version.

Description	Part Number
674 Rain Gauge	
English - Tips every 0.01 inch of rainfall	60-3284-001
Metric - Tips every 0.1 mm of rainfall	68-3280-001

Isco, Inc.
4700 Superior Street
Lincoln NE 68504 USA
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E-Mail: info@isco.com
Internet: www.isco.com

CDMA
Digital Cellular Modem System
Special Product Application #1489

TELEDYNE ISCO
A Teledyne Technologies Company

SPA Instruction Sheet
60-5314-626 Revision A

Overview

The CDMA digital cellular modem system from Teledyne Isco (part #60-5314-489) is designed for use with the 6700 Series Samplers (remote data access/commands, outgoing text messaging), and the 4100/4200 Series Flow Meters (remote data access only).

The system uses service providers Alltel, Verizon, and Telus (Canada)*.

Text Messaging

The digital text messaging function can dial out to up to 3 different phone numbers (from a single service provider) when an alarm condition has been met. The text message states which alarm condition has been met, and the phone number of the modem.

Remote Operation

You can call the sampler using a command program like Hyper Terminal and send commands such as: changing the sample rate/volume, starting/stopping a program, taking manual samples, etc. For a complete list of available remote commands, see "Computer Operation > Menu Control" in the Remote Operation section of the sampler's Installation and Operation Guide.

Antenna Options

One of 3 antenna types is included with your system, also specified when ordering:

- The **external, magnetic mount whip** antenna (part #60-5314-606) is 6 feet long and 3 inches tall. The external whip antenna is for general use, and is especially desirable when the system is stored within an enclosure.
- The **internal** antenna is useful in maintaining low visibility of the system.
- The **external "hockey puck"** antenna (part #60-5314-605) is 10 feet (3m) long, and used primarily in manhole applications.
  The antenna is buried next to the manhole, in a hole bored into the pavement, at a depth leaving the top of the antenna flush with the street.
  An adjoining hole is drilled through the manhole collar for the antenna's cable. To complete installation, fill the holes in with cement.

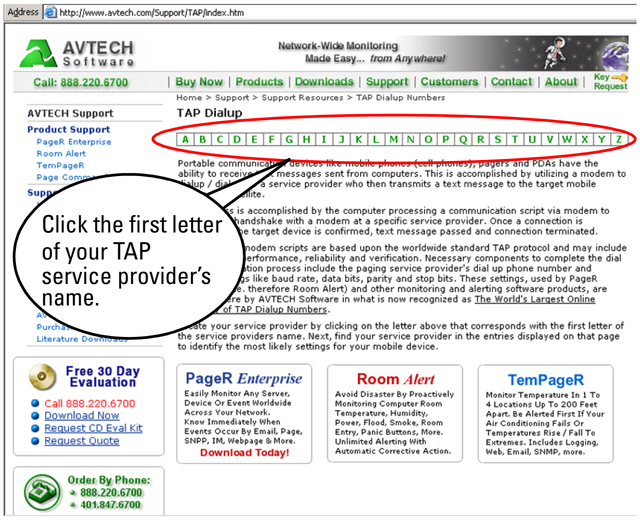
Sampler Programming

For alarm programming, see "Dial Out Alarms" in the Extended Programming section of the sampler's Installation and Operation Guide.

After the phone number(s) for dial out have been entered, the sampler display will prompt you to enter first the modem's phone number, then the TAP (Telocator Alphanumeric Protocol) service number, and then the parameter settings for that number (baud rate, data bits, parity, stop bits).

To program this information into the sampler, perform the following steps:

1. At the prompt, enter the phone number of the digital cellular modem.
2. To find your cell phone's TAP service number and parameter settings, go to **http://www.avtech.com/Support/TAP/index.htm**.



TAP Dialup

Portable communicat devices like mobile phones (cell phones), pagers and PDAs have the ability to receive t messages sent from computers. This is accomplished by utilizing a modem to dialup / dial a service provider who then transmits a text message to the target mobile ellite.

s is accomplished by the computer processing a communication script via modem to handshake with a modem at a specific service provider. Once a connection is he target device is confirmed, text message passed and connection terminated.

modem scripts are based upon the worldwide standard TAP protocol and may include erformance, reliability and verification. Necessary components to complete the dial ation process include the paging service provider's dial up phone number and gs like baud rate, data bits, parity and stop bits. These settings, used by PageR e. therefore Room Alert) and other monitoring and alerting software products, are ere by AVTECH Software in what is now recognized as The World's Largest Online of TAP Dialup Numbers.

ate your service provider by clicking on the letter above that corresponds with the first letter of the service providers name. Next, find your service provider in the entries displayed on that page to identify the most likely settings for your mobile device.

Free 30 Day Evaluation
- Call 888.220.6700
- Download Now
- Request CD Eval Kit
- Request Quote

PageR *Enterprise*
Easily Monitor Any Server, Device Or Event Worldwide Across Your Network. Know Immediately When Events Occur By Email, Page, SNPP, IM, Webpage & More.
Download Today!

Room *Alert*
Avoid Disaster By Proactively Monitoring Computer Room Temperature, Humidity, Power, Flood, Smoke, Room Entry, Panic Buttons, More. Unlimited Alerting With Automatic Corrective Action.

TemPageR
Monitor Temperature In 1 To 4 Locations Up To 200 Feet Apart. Be Alerted First If Your Air Conditioning Fails Or Temperatures Rise / Fall To Extremes. Includes Logging, Web, Email, SNMP, more.

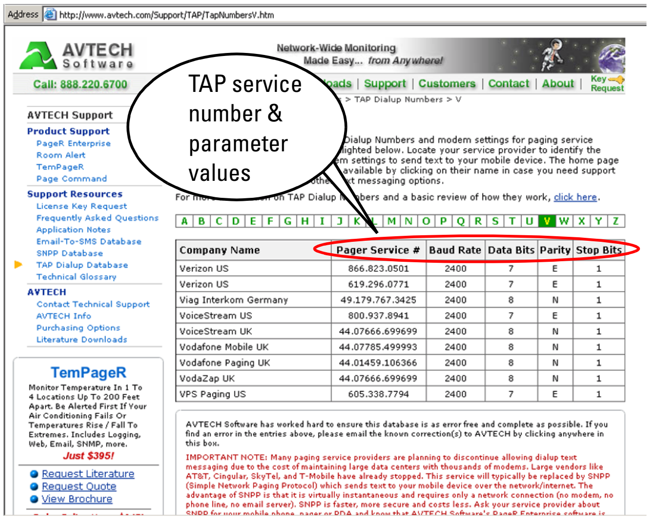
Order By Phone:
- 888.220.6700
- 401.847.6700

Figure 1: TAP Service Provider Screen Locating your service provider

3. Click on the letter corresponding with the first letter of the name of the service provider for your text message enabled hip phone.
4. On the next screen, locate your service provider's name in the left column and program the correct TAP number and parameters into the sampler.

---

*Additional service providers may be available. Contact the factory for information.



TAP service number & parameter values

Dialup Numbers and modem settings for paging service …lighted below. Locate your service provider to identify the …em settings to send text to your mobile device. The home page … available by clicking on their name in case you need support … othe… …xt messaging options.

For mor… …on TAP Dialup N…bers and a basic review of how they work, click here.

Company Name	Pager Service #	Baud Rate	Data Bits	Parity	Stop Bits
Verizon US	866.823.0501	2400	7	E	1
Verizon US	619.296.0771	2400	7	E	1
Viag Interkom Germany	49.179.767.3425	2400	8	N	1
VoiceStream US	800.937.8941	2400	7	E	1
VoiceStream UK	44.07666.699699	2400	8	N	1
Vodafone Mobile UK	44.07785.499993	2400	8	N	1
Vodafone Paging UK	44.01459.106366	2400	8	N	1
VodaZap UK	44.07666.699699	2400	8	N	1
VPS Paging US	605.338.7794	2400	7	E	1

AVTECH Software has worked hard to ensure this database is as error free and complete as possible. If you find an error in the entries above, please email the known correction(s) to AVTECH by clicking anywhere in this box.

IMPORTANT NOTE: Many paging service providers are planning to discontinue allowing dialup text messaging due to the cost of maintaining large data centers with thousands of modems. Large vendors like AT&T, Cingular, SkyTel, and T-Mobile have already stopped. This service will typically be replaced by SNPP (Simple Network Paging Protocol) which sends text to your mobile device over the network/internet. The advantage of SNPP is that it is virtually instantaneous and requires only a network connection (no modem, no phone line, no email server). SNPP is faster, more secure and costs less. Ask your service provider about

TemPageR

Monitor Temperature In 1 To 4 Locations Up To 200 Feet Apart. Be Alerted First If Your Air Conditioning Fails Or Temperatures Rise / Fall To Extremes. Includes Logging, Web, Email, SNMP, more.

Just $395!

Figure 2: TAP Service Parameters Program phone number and parameters into your sampler

Installation

To install the cellular system:

1. Connect the modem to the interrogator port of the sampler or flow meter with the 10-foot cable provided with the system.

☑ *Note*

Connecting either the serial output or an interrogator cable to the sampler disables an internal modem, if one is installed.

2. Connect the antenna cable’s SMA connector to the modem (if it is external).
3. Using a computer running Isco’s Flowlink software and the baud rate set to 9600, call the system’s modem to establish proper function.

Last modified December 5, 2005

AMERESCO SOLAR
Green • Clean • Sustainable

40W Photovoltaic module 40J

This line of modules is the direct result of over three decades of design, manufacturing and use. Attending to every detail in the design and manufacture of our products, our process controls and testing methods have optimized module life and electrical energy production.

Ameresco Solar's off-grid module line offers the following features and benefits:

► Built to last

From mountaintops to off-shore platforms, on weather stations in the bitter cold of Antarctica and on telephone signal repeaters in the hot Australian outback, the technology has been proven in the harshest environments.

► Accessible junction box for off-grid connections

J-type junction box has accessible terminals for easier module interconnections in off-grid applications, and it allows fitting cable glands for various sections.

► Thick, durable scratch resistant back sheet

The thick back sheet provides extra insulation and increased resistance to protect your module against rough handling. Made of white polyester, it ensures longer term performance and increased energy production.

► High reliability

Cell interconnections and diode placement use well-established industry practice and are field-proven to provide excellent reliability.

► Quality and certifications

ISO 9001

ISO 9001 factory certification ensures that our manufacturing facilities use proven manufacturing and quality control processes.

Certified to IEC 61215 and 61730

Certified to UL1703 and ULC1703
Certified for use in Class 1, Division 2 Hazardous locations

Conforms with European Directive 2006/95/EC

Photographs are intended to portray typical module appearance, actual module appearance may vary.

40W PHOTOVOLTAIC MODULE - 40J

AMERESCO SOLAR
Green • Clean • Sustainable

Electrical characteristics

	(1) STC 1000W/m²	(2) NOCT 800W/m²
Maximum power (P_{max})	40W	29W
Voltage at P_{max} (V_{mpp})	17.9V	15.9V
Current at P_{max} (I_{mpp})	2.23A	1.83A
Short circuit current (I_{sc})	2.32A	1.88A
Open circuit voltage (V_{oc})	22.1V	20.1V
Module efficiency	11.4%	
Tolerance (P_{max})	±10%	
Nominal voltage	12V	
Efficiency reduction at 200W/m²	<5% reduction (efficiency 10.8%)	
Limiting reverse current	2.54A	
Temperature coefficient of I_{sc}	0.105%/°C	
Temperature coefficient of V_{oc}	-0.360%/°C	
Temperature coefficient of (P_{max})	-0.45%/°C	
(3) NOCT	47±2°C	
Maximum series fuse rating	6A	
Maximum system voltage	50V	
Application class (according to IEC 61730:2007)	Class C	

1: Values at Standard Test Conditions (STC): 1000W/m² irradiance, AM1.5 solar spectrum and 25ºC module temperature

2: Values at 800W/m² irradiance, Nominal Operation Cell Temperature (NOCT) and AM1.5 solar spectrum

3: Nominal Operation Cell Temperature: Module operation temperature at 800W/m² irradiance, 20ºC air temperature, 1m/s wind speed

Mechanical characteristics

Solar cells	36 crystalline silicon cut cells connected in series
Front cover	High transmission 3.2mm (1/8th in) glass
Encapsulant	EVA
Back cover	White polyester
Frame	Silver anodized aluminum
Junction box	IP65 with 4 terminal screw connection block; accepts PG 13.5, M20 13mm (½") conduit, or cable fittings accepting 6-12mm diameter cable. Terminals accept 2.5-10mm² (8-14 AWG) wire
Dimensions	655 x 537 x 50mm / 25.8 x 21.1 x 2in
Weight	5.75kg / 12.7lbs

All dimensional tolerances within ±1% unless otherwise stated.

Warranty*

- ► Free from defects in materials and workmanship for 2 years
- ► 90% min. power output over 12 years
- ► Optional 25 years available

* Refer to warranty document for terms and conditions.

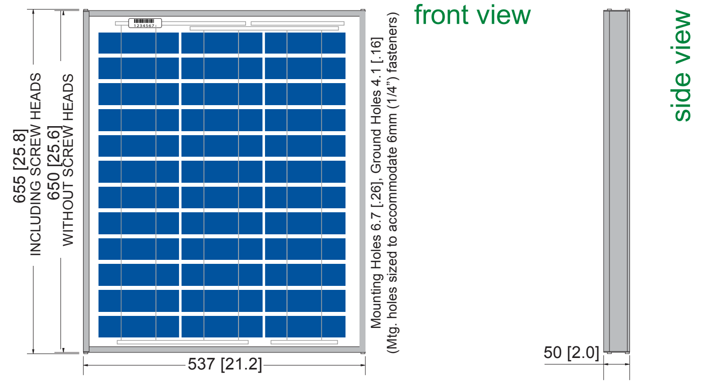
Certification

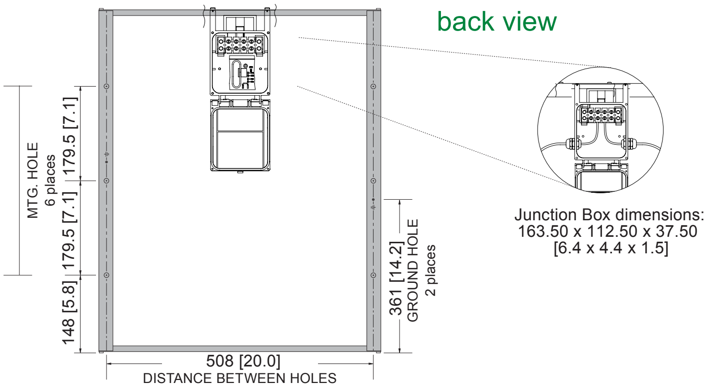
Certified according to the extended version of the IEC 61215 (ed.2), EN 61215:2005-08 (Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval).

Certified according to IEC 61730-1 and IEC 61730-2 (ed.1), EN 61730-1:2007-05 and EN 61730-2:2007-05. (Photovoltaic module safety qualification, requirements for construction and testing).

Listed to UL 1703 & ULC ORD-C1703 Standard for Safety by Intertek ETL. Class C Fire Rating.

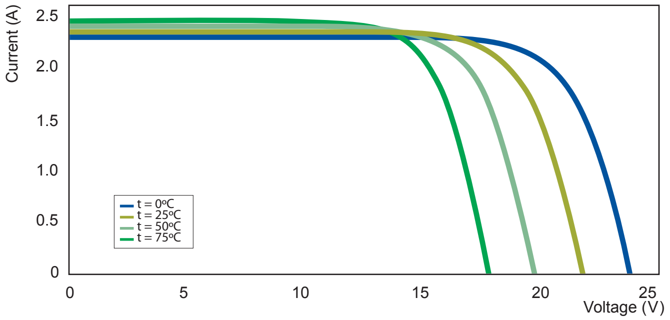
Approved by Intertek ETL according to FM 3611, Dec 2004, and according to CAN/CSA C22.2 No. 213-M1987, 1st Edition, Reaffirmed 2004, for use in a Class I, Division 2, Group A, B, C, D Hazardous (Classified) Location.



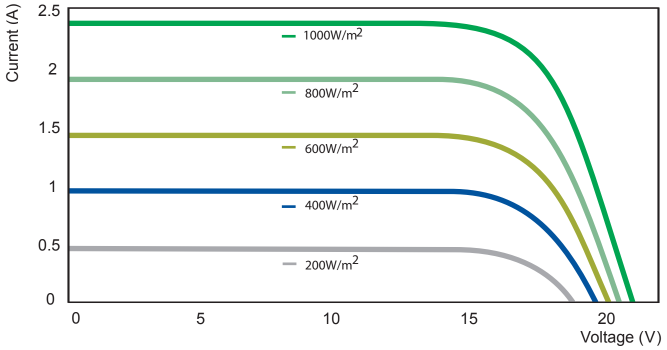


Dimensions in mm [in].

Temperature - dependence of performance



Irradiance - dependence of performance



For more information, call 855-43-SOLAR or visit www.amerescosolar.com.

PS-4863-01-0/13 03 00.0

Appendix C

Checklists

Candidate Wet Weather Sampling Site Evaluation Checklist
And Data Collection Form
North Central Texas Council of Governments
Regional Wet Weather Characterization Program
Fall 2017

Date:__________________ Time: _________________

Location Name/Number:____

Nearest Cross Street/Location Description: ____

Entity (Circle One): Arlington Garland Irving Mesquite NTTA Plano

GPS Latitude/Longitude:________________/_____________________

Receiving Water: ____

Data for locating automated samplers:

Ease of Installation ~ Native or Existing Location / Bench ~ Need to construct Location / Platform / Base

Describe: ____

Ease of channel/sample area access and safety: ~ Describe either YES or NO

Describe: ____

____

Conveyance Information:

Conveyance Type & Size (Example: Unlined Channel, Grassy Swale, Open Channel Chute, etc.)

Describe: ____

____

Vegetative Cover ~ High ~ Medium ~ Low

Describe: ____

____

Visibility from the Right-of-Way ~ High Visibility ~ Low Visibility ~ None

Describe: ____

____

Public Access ~ Yes ~ No

Describe: ____

____

Evidence of Public Use ~ Yes ~ No (Circle all that apply, or describe)

Cans ~ Bottles ~ Paper ~ Food Products ~ Rubble ~ Wood ~ Brush ~ Graffiti ~ Transient Community

Describe: ____

____

Evidence of Normal Surface Water Elevation ~ Yes ~ No ~ Depth __________ inches/feet

Describe: ____

____

Perennial Flow Presence ~ High ~ Medium ~ Low ~ Depth __________ inches/feet

Describe: ____

____

Estimation of Automated Sampler, Sample Collection Criterion:

Estimate of maximum linear horizontal distance (in feet) of tubing needed to reach water ________
(Recommended to be less than 30 feet)

Estimate of maximum vertical distance (in feet) needed to collect sample ____________________________
(Recommended to be less than 25 feet)

Other Site Features of Importance: ____

____

____

____

____

____

Notes: ____

____

____

____

____

____

____

____

Provide Site Visit Attendee Name(s) and Company/Entity:

____

____

____

____

Site Sketch(s):

(Provide a conveyance cross section, along with a plan view sketch. Include dimensions in feet. Use additional pages if necessary)

AERIAL VIEW

CROSS SECTION

Facing: Upstream / Downstream (Circle One)

NCTCOG STORMWATER SAMPLE COLLECTION
MOBILIZATION CHECKLIST

Municipality: (Circle One): Arlington Garland Irving Mesquite NTTA Plano

Date: ___________________ Name(s) of sampling team:_____________________

Confirm Qualified Storm Event		
1. Time since last rainfall (____ Days)		
2. Rain gauge & samplers functioning	Y	N
3. Rainfall amount ______ Rain gauge used ______		
Stations Active (List Stations Activated by Storm Event) Arlington: Garland: Irving: Mesquite: NTTA: Plano:		

Gather Required Field Equipment					
☐ Field Equipment Box (Latex gloves, first-aid kit, see MP/QAPP)					
☐ Chain of Custody for Samples					
☐ Sample Collection Call (Atkins, Lab, Field Team)					
☐ Waders/Rubber Boots/Rain Coat/ High Visibility Vest					
☐ Digital Camera for Photo Documentation					
Containers, Labels and Ice for Samples	Grab (1) ☐	Comp (2) ☐	Comp (3) ☐	Comp (4) ☐	
Temperature/pH/Conductivity meter calibrated?				Y	N

Final Preparation		
1. Is severe weather forecast for site? (Check NOAA and Local Websites for details – i.e. www.noaa.gov, etc.)	Y	N
2. Notified Atkins office personnel of trip and return time?	Y	N
3. Notify lab?	Y	N

NCTCOG STORMWATER SAMPLE COLLECTION CHECKLIST

Date: ___________________ Name: _____________________________________

Station ID: ___________ Station Name: ______________________________________

Entity: (Circle One): Arlington Garland Irving Mesquite NTTA Plano

Current Field Conditions

- Time begin sample collection activities: ______________

  Time end sample collection activities: ______________
- Ambient air temperature: _________ °F
- Current cloud condition:

  ☐ Fog ☐ High Clouds ☐ Partly Cloudy ☐ Cloudy ☐ Clear

  ☐ Other: ___________________________
- Current weather condition:

  ☐ Sunny ☐ Light Rain ☐ Heavy Rain ☐ Snow/Sleet/Hail

  ☐ Windy ☐ Thunderstorms ☐ Severe Storms ☐ Other –
- Construction activities w/n the drainage area: Y N
- Observed rise: Y N

  ☐ Estimate: _________________________

Describe: ____

Comments: ____

____

Electronic Equipment Check
Sampler ☐ No error messages present (list error messages with comments) ☐ Sampling complete and sampler "disabled".
Rain Gauge ☐ Functioning and data recorded for duration of storm
Level ☐ Functioning and data recorded for duration of storm
Comment:

Grab Sample Documentation		
Grab sample collected appropriately during first flush?	Y	N

Time collected: ____________________ (e.g., 2100)

pH ___________ Conductivity _______________ Temperature _____________

If any of the following conditions are observed call or text 713-501-4569 immediately.

- pH outside of 6-9su range
- Conductivity less than 50 umhos/cm or greater than 500 umhos/cm\
- Abnormal temperature
- Abnormal color
- Oil sheen
- Odor: sewage, sulfur, sour, petroleum, natural gas

Estimated volume in grab bottle: __________________gal (at least 0.5 gal)

Qualitative description of sample characteristics:
☐ Turbid ☐ Clear ☐ Oil Sheen ☐ Debris ☐ Algae
☐ Other:

Sample bottles labeled and placed on ice?	Y	N

Comment:

Composite Sample Documentation		
Sub-samples collected appropriately throughout storm duration?	Y	N

Time Collected
1 of 2 Bottle 2: ____________________ (e.g., 2100)
2 of 2 Bottle 2: ____________________ (e.g., 2100)
1 of 2 Bottle 3: ____________________ (e.g., 2100)
2 of 2 Bottle 3: ____________________ (e.g., 2100)
1 of 2 Bottle 4: ____________________ (e.g., 2100)

Actual volume w/n 20% of expected volume?	Y	N

Qualitative description of the sample characteristics (can be more than one):
☐ Turbid ☐ Clear ☐ Oil Sheen ☐ Debris ☐ Algae
☐ Other:

Sample bottles labeled and placed on ice?	Y	N

Comment:

Rainfall Documentation

Time since last rainfall ___________ days

Rainfall amount ___________ in.

Rain gauge used ________________________

Additional comments.

NCTCOG MAINTENANCE CHECKLIST
FOR MONITORING STATIONS

Municipality: (Circle One): Arlington Garland Irving Mesquite NTTA Plano

Date: ___________________ Name: ______________________________

Intake Port (when accessible):

- ☐ Tubing opening cleaned of debris.
- ☐ Sample tubing in good condition and anchored securely.
- ☐ Defective tubing replaced (as needed).
- ☐ Debris and sediment removed from the immediate vicinity of the intake port and along the tubing line.
- ☐ Sample strainer cleaned periodically with a brush.

At Sampling Station:

Sampler

- ☐ Sample container dismantled successfully.
- ☐ Connectors at the back of the controller capped tightly.
- ☐ Controller power cable connected.
- ☐ Tubing in contact with the peristaltic pump inspected and in good condition.
- ☐ Tubing replaced (as needed after 1,000,000 pump counts).
  - o Number of counts _______________.
- ☐ Sample tubing in good condition (no cracks, visible obstructions, kinks)
- ☐ Sample tubing joint connections in good condition (no leak)
- ☐ Programmable controller display and keyboard in good condition

- ☐ Sampler firmly plugged into power supply and receiving power
- ☐ Desiccant bag within the controller case inspected and recharged/ replaced (as necessary)
- ☐ Error messages reported by the sampler investigated and remedied
- ☐ Connections inspected to ensure that they are secure

Shelter

- ☐ Sampling shelter exterior inspected and in good condition (no cracks, vandalism, etc.)
- ☐ No debris/waste inside or around shelter
- ☐ Shelter door and lock operational

Rain Gauge

- ☐ Rain gauge clear of debris (if applicable)
- ☐ Connection to sampler in good condition (if applicable)

Cell Phone

- ☐ Cell phone antenna attached to shelter (if applicable)
- ☐ Connection to sampler in good condition (if applicable)

Temporary Power

- ☐ Battery sufficiently charged to complete one sampling event
- ☐ Battery connections tight to battery probes?

Equipment Calibration

- ☐ Bubbler level calibrated
- ☐ Sample volume calibrated

NCTCOG STORMWATER MONITORING
LABORATORY DELIVERABLES CHECKLIST

Date: __________________ Reviewer:___________________________

Municipality: (Circle One): Arlington Garland Irving Mesquite NTTA Plano

Event ID: *STATION ID*-__________

Hard Copy Deliverable
<u>Cover Page</u> ☐ The proper event ID, type of sample analyzed and date of report specified on cover
<u>Results</u> ☐ The proper event ID, contact, sample location, date laboratory received and laboratory contact specified on analysis results page ☐ Matrix specified is consistent with the sample taken ☐ Sample holding times consistent with MP/QAPP ☐ Laboratory analyses match analytes requested on COC ☐ Laboratory methods match methods requested in MP/QAPP ☐ Units reported match units requested in MP/QAPP ☐ Proper MDL/MAL achieved Note exceptions:
<u>Lab QA/QC</u> ☐ The proper event ID and date of analysis specified on analysis results page ☐ Flagging criteria clearly defined ☐ QA/QC sample results are within acceptable levels ☐ Other QA/QC performed are acceptable (i.e. cone splitter blanks, etc.) List of other QA/QC items: _____________________________________ Note exceptions and flagged samples: Note exceptions and flagged samples:
<u>Additional Material</u> ☐ Proper COC copy attached ☐ Sample Protocol Nonconformance Worksheet attached, if applicable

Appendix D

Chain-of-Custody

800 106th Street
Arlington, Texas 76011

TTI ENVIRONMENTAL LABORATORIES

CHAIN OF CUSTODY RECORD

NELAP ACCREDITED TNI LABORATORY

Page__________of__________

Telephone: (817) 861-5322
FAX: (817) 261-1717
www.ttilabs.com

CLIENT NAME: Atkins

CLIENT ADDRESS: 17220 Katy Freeway, Building 1, Suite 200

CITY, STATE, ZIP: Houston, TX, 77094

P.O. NO.:

CLIENT CONTACT: Chad Richards

PHONE: (281) 529-4200

FAX: (281) 493-1047

EMAIL: chad.richards@atkinsglobal.com

QUOTE NO.:

PROJECT NO.: 100060260

PROJECT NAME: NCTCOG RSWMP

SAMPLER'S NAME:

TEST PARAMETERS

LAB USE

LAB NO.

ON ICE ☐ YES ☐ NO

TEMP.OF COOLERS °C

3			4	>

CUSTODY SEAL

Cooler ☐ Y ☐ | ☐ Y ☐

SEAL INTACT

Cooler ☐ Y ☐ | ☐ Y ☐

Sample Collection					No. / Type Containers[2]																			
Date Ex:mm/dd/yyyy	Time Ex:hh:mm	(C)omp (G)rab	Matrix[1]	Sample Description	VOA	1 LT.	A/G	P/O	4 oz PRES[3]	E. coli	Oil and Grease	BOD5\COD\TSS\TDS	Tot. Pb/Tot. Zn/Tot. Cr	Tot. As/Tot. Cu	Diss. & Tot. P/Ortho P./Tot. N	Ammonia N./Nitrate N.	Atrazine				DRY WT.	TRRP	HOLD[4]	TTI Lab ID
		C	W	A 3.7 L				G		✓	✓													
		C	W	B,C,D 3.7L				G				✓	✓	✓	✓	✓	✓							

TURNAROUND TIME:

☑ STANDARD 5 Business Days

☐ 50% RUSH 3 Business Days

☐ 100% RUSH 1Business Day / ASAP*

☐ E.R. 300% RUSH Same Day / ASAP*

1. MATRIX: WW-Wastewater; W-Water; S-Soil; SD-Solid; L-Liquid; A-Airbag; C-Charcoal Tube; SL-Sludge; O-Oil
2. CONTAINERS: VOA-40ml vial; A/G-Amber or Glass 1 Liter; 4 oz-Glass Wide Mouth; P/O-Plastic or
3. PRES.: 1-None; 2-1:1HNO$_3$; 3-1:1 HCL; 4-1:1 H$_2$SO$_4$; 5-NaOH; 6-Ice; 7-Other__________________
4. HOLD: Lab will hold samples for 30 (thirty) days.

Relinquished by (Signature)	Date	Time	Received By: (Signature)	Date	Time

REMARKS: ☐ TTI Drop Off ☐ TTI Pickup

Clients delivery of samples to TTI constitutes acceptance to reimburse TTI as per the terms and conditions listed in the price schedule.

Appendix E

Annual Flow Equations

Currently In Development

To Be Submitted Separately

Appendix F

Nearest Hospital Information

Station ID	Hospital	Directions
AR1801/1901	**Texas General Hospital** 2709 Hospital Blvd Grand Prairie, TX 75051 (469) 999-0000	1. Head southeast on E Copeland Rd toward Six Flags Dr 2. Slight right onto TX-360 Frontage Rd/N Watson Rd 3. Use the middle lane to turn left onto the ramp to E Abram St 4. Continue onto E Abram St 5. Turn right onto Osler 6. Turn left onto Howell 7. Turn right onto Stewart 8. Turn left at the 1st cross street onto Hospital Blvd Destination will be on the right
AR1802/1902	**Texas General Hospital** 2709 Hospital Blvd Grand Prairie, TX 75051 (469) 999-0001	1. Head north on S State Hwy 360 2. Use the left lane to take the ramp onto TX-360 N 3. Merge onto TX-360 N 4. Take the exit toward Abram St 5. Merge onto S Watson Rd 6. Turn right onto Prairie Oaks Dr 7. Turn right onto Osler Dr 8. Turn left onto Stewart Dr 9. Turn right at the 1st cross street onto Hospital Blvd Destination will be on the right
GA1801/1901	**Texas Health Presbyterian Hospital Dallas** 8200 Walnut Hill Ln Dallas, TX 75231 (214) 345-6789	1. Head south on N Shiloh Rd 2. Turn right onto Forest Ln 3. Keep left to stay on Forest Ln 4. Continue straight onto Skillman St 5. Continue straight to stay on Skillman St 6. Turn right onto Walnut Hill Ln 7. Turn left onto Main Cir 8. Enter the traffic circle Destination will be on the right
GA1802/1902	**Texas Health Presbyterian Hospital Dallas** 8200 Walnut Hill Ln Dallas, TX 75231 (214) 345-6789	1. Head east on Forest Ln toward S Garland Ave 2. Turn right at the 1st cross street onto S Garland Ave 3. Turn right onto W Kingsley Rd 4. Continue onto Walnut Hill Ln 5. Turn left onto Main Cir 6. Enter the traffic circle Destination will be on the right
GA1803/1903	**Baylor Scott & White Medical Center - Lake Pointe** 6800 Scenic Dr, Rowlett, TX 75088 (972) 412-2273	1. Head northeast on La Prada Dr toward Duck Creek Dr 2. Turn right onto Duck Creek Dr 3. Turn right onto Broadway Blvd 4. Turn left onto E Interstate 30 5. Use the left lane to take the ramp onto I-30 E 6. Take exit 64 for Dalrock Rd 7. Continue onto Dalrock Rd 8. Turn right onto Woodlake Dr 9. Turn left onto Scenic Dr 10. Sharp left to stay on Scenic Dr Destination will be on the right

IR1801/1901	**William P. Clements Jr. University Hospital** 6201 Harry Hines Blvd Dallas, TX 75390 (214) 633-5555	1. Head north on N Sowers Rd toward W Pioneer Dr 2. Turn left onto W Pioneer Dr 3. Turn right onto N MacArthur Blvd 4. Turn right onto W Airport Fwy 5. Use the left lane to take the ramp onto TX-183 E 6. Merge onto TX-183 E 7. Use the right lane to merge onto I-35E S 8. Take exit 432B for TX-356/Commonwealth Dr 9. Merge onto N Stemmons Fwy 10. Slight left toward N Stemmons Fwy 11. Turn left onto N Stemmons Fwy 12. Turn right onto Record Crossing Rd 13. Turn left 14. Turn left 15. Sharp left Destination will be on the right
IR1802/1902	**William P. Clements Jr. University Hospital** 6201 Harry Hines Blvd Dallas, TX 75390 (214) 633-5555	1. Head east on E Oakdale Rd toward S Nursery Rd 2. Turn left at the 1st cross street onto S Nursery Rd 3. Turn right onto E Shady Grove Rd 4. Use the right lane to turn slightly right onto E Irving Blvd 5. Slight right onto the TX-356 E ramp 6. Merge onto TX-356/Irving Blvd 7. Use the left 2 lanes to turn left onto Commonwealth Dr 8. Use any lane to turn left onto N Stemmons Fwy 9. Turn right onto Record Crossing Rd 10. Turn left 11. Turn left 12. Sharp left Destination will be on the right
MS1801/1901	**Dallas Regional Medical Center** 1011 N Galloway Ave Mesquite, TX 75149 (214) 320-7000	1. Head south toward New Market Rd 2. Turn left onto New Market Rd 3. Turn left onto S Beltline Rd 4. Continue straight onto S Bryan Belt Line Rd 5. Turn left onto Park Ln 6. Turn left onto N Galloway Ave Destination will be on the right
MS1802/1902	**Dallas Regional Medical Center** 1011 N Galloway Ave Mesquite, TX 75149 (214) 320-7000	1. Head east on Edwards-Church Rd toward Waterway Dr 2. Turn left onto Clay Mathis Rd 3. Turn left onto E Scyene Rd 4. Continue onto E Main St 5. Turn right onto N Bryan Belt Line Rd 6. Turn left onto Park Ln 7. Turn left onto N Galloway Ave Destination will be on the right
PL1801/1901	**Medical City Plano** 3901 W 15th St Plano, TX 75075 (972) 596-6800	1. Head west on W 16th St 2. Turn left onto Alma Dr 3. Turn right onto W 15th St/Norman F Whitsitt Pkwy 4. Turn right onto Coit Rd 5. Turn right 6. Sharp left Destination will be on the right
NT1801/1901	**Medical City Las Colinas** 6800 N MacArthur Blvd Irving, TX 75039 (972) 969-2000	1. Head northeast on State Hwy 161 N 2. Turn right onto N MacArthur Blvd 3. Turn left Destination will be on the right

NT1802/1902	**Texas General Hospital** 2709 Hospital Blvd Grand Prairie, TX 75051 (469) 999-0000	1. Head north on Robinson Rd 2. Slight left toward State Hwy 161 S 3. Turn left onto State Hwy 161 S 4. Turn right onto W Marshall Dr 5. Turn right onto S Great SW Pkwy 6. Turn left onto Hospital Blvd Destination will be on the left

Appendix C:

Monitoring Program and Quality Assurance Project Plan for:

Bioassessments: 2018-2022

Innovative approaches
Practical results
Outstanding service

REGIONAL WET WEATHER CHARACTERIZATION PROGRAM PERMIT TERM FOUR

MONITORING PROGRAM AND QUALITY ASSURANCE PROJECT PLAN FOR BIOASSESSMENTS: 2018–2021

Prepared for:

North Central Texas Council of Governments
P.O. Box 5888
Arlington, Texas 76005-5888

August 2018

Prepared by:

FREESE AND NICHOLS, INC.
10431 Morado Circle, Suite 300
Austin, Texas 78759

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ACRONYMS AND ABBREVIATIONS

ALU	aquatic life use
cfs	cubic feet per second
DFW	Dallas-Fort Worth
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
FNI	Freese and Nichols, Inc.
FSO	field sampling organization
GPS	global positioning system
mg/L	milligrams per liter
mL	milliliter(s)
mm	millimeter(s)
mS/cm	milliSiemens per centimeter
NBS	National Bureau of Standards
NCTCOG	North Central Texas Council of Governments
NRC	National Research Council
NTTA	North Texas Tollway Authority
PPE	personal protective equipment
ppm	parts per million
QA/QC	quality assurance/quality control
QAPP	quality assurance project plans
TCEQ	Texas Commission on Environmental Quality
TMDLs	total maximum daily loads
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks & Wildlife Department
TxDOT	Texas Department of Transportation
USGS	U.S. Geological Survey
YSI	Yellow Springs Institute

1.0 INTRODUCTION

1.1 BACKGROUND

Since biota respond to environmental conditions impacting them, biological assessments can demonstrate the impacts of individual stressors and the combined effects of different stressors. With this understanding, the National Research Council (NRC) report, *Urban Stormwater Management in the United States* (NRC, 2008), recommends including assessments of storm water management program progress with biological assessments of stream conditions. It also recommends that storm water management strategies should address all stressors to a stream.

Assessing the biological health of streams in the North Central Texas Council of Governments (NCTCOG) jurisdiction helps measure whether program goals of aquatic life use (ALU) protection are met. ALU attainment is based on evaluations of biological communities along with water quality and physical habitat conditions. Stream habitats are typically impacted by channelization and increased impervious surfaces along the shores in urban and suburban areas. These areas are frequently exposed to non-point source discharges that can directly or indirectly depress dissolved oxygen (DO) levels in the water, bury portions of the stream bottom with sediment, or create toxic conditions.

ALU assessments have not been performed on most unclassified streams. Texas Surface Water Quality Standards assign a high aquatic life use to all unclassified perennial streams that have not been assessed (Texas Commission on Environmental Quality [TCEQ], 2018a). Furthermore, some unclassified streams (i.e., urban streams) are stressed by many natural and anthropogenic factors interacting in complex ways. Biological monitoring or bioassessments help interpret the effects of these factors on the health and function of the streams. While water chemistry and channel morphology are important parts of the assessment, biological sampling provides a view of the cumulative effects of different environment factors.

1.1.1 Second Permit Term, 2005‑2010

In the second permit term (2005–2010), the permit was administered by the TCEQ and implemented through NCTCOG and a consultant team led by Atkins. Approval was obtained to utilize in-stream stations for the regional monitoring program to more directly assess the impact of storm water within receiving streams. The revised program was termed the Regional Wet Weather Characterization Program (RWWCP) and was added as an option in Part IV.A.3 of the Texas Pollutant Discharge Elimination System (TPDES)

Municipal Separate Storm Sewer System (MS4) permits issued to the Phase I North Central Texas governmental entities. The primary goal of the in-stream monitoring program was to obtain baseline data on receiving streams in the Dallas-Fort Worth (DFW) metroplex for use in determining long-term water quality trends. Since the RWWCP language existed outside of each permit, it allowed greater flexibility for making changes to the program. During this second permit term, the North Texas Tollway Authority (NTTA) joined the regional program. All other participants remained the same, except for the Texas Department of Transportation (TxDOT)-Fort Worth District, who became a co-permittee with the cities of Fort Worth and Arlington and were no longer required to conduct wet weather monitoring. According to the original RWWCP protocol, municipal participants collected data from three sampling sites in the watershed (typically upstream, midstream, and downstream), and the transportation agencies collected data from two sites (upstream and downstream stations only). Samples were collected quarterly from each site during a qualifying rain event and were analyzed for 18 parameters.

As an added component, the City of Fort Worth selected the Representative Rapid Bioassessment Monitoring Option (Part IV.A.2) in their permit, which allowed the chemical sampling frequency to be reduced from four times per year per site to once per year per site. In its place, two bioassessments were conducted each year at a minimum of nine sites. These bioassessments were based on protocols developed by the U.S. Environmental Protection Agency (EPA). A summarization of this bioassessment data was included along with the chemical data in the annual regional monitoring report each year of the permit term.

1.1.2 Third Permit Term, 2011‑2016

In the third permit term (2011–2016), the cities of Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, and Plano, together with the North Texas Tollway Authority and TxDOT-Dallas District agreed to continue their regional partnership and work cooperatively through the NCTCOG and Atkins to develop a revised RWWCP. This revised plan effectively monitored at least 50% of each entity’s jurisdictional area by the end of the permit term. This extension of jurisdictional coverage allowed a reasonable assessment of each entity’s jurisdictional watersheds while also achieving a balance among the various goals of obtaining valid scientific information, meeting permit compliance, and addressing what is practicable for each entity. The primary goal of the RWWCP during this permit term was to continue the assessment of urban impact on receiving stream water quality and to document any improvement presumably resulting from local Best Management Practice (BMP) implementation. The data collected during this permit term built upon the set of regional water quality data collected under the previous term needed for meaningful trend analysis. Since assessing the impact of urban runoff on receiving stream quality is a primary focus of this program, assessing the biological integrity of the streams was deemed fundamental in the third term. During the third term, 24 watersheds were chemically monitored and 12 watersheds were bioassessed across the region, with substantial overlap between the two sampling approaches.

At the end of the third permit term's sampling effort, a final summary report was prepared by Atkins to assess the sampling effort. The report found that in more than half of the watersheds sampled had high bacteria exceedances, with the average number of nine exceedances in these watersheds. Stream degradation was noted by Atkins' monitoring team in about half of the sampled watersheds based on the data analyzed, and additional monitoring was recommended at these sites.

The report analyzed each of the monitored watersheds, and looked at characteristics specific to each watershed. This approach provided more usable information for each entity, and each individual watershed's information can be reviewed and used to implement BMPs and other monitoring practices in the future. Many of the watersheds that were studied in the third term were classified as high priorities to be studied again due to the data was collected during the third term. The watersheds that were classified as high priority were generally those with stream degradation, those with high number of exceedances of criteria of monitored parameters, and those with existing total maximum daily loads (TMDLs).

Taking into account each watershed's characteristics and evaluating the RWWCP as a whole, Atkins made various recommendations for modifying the RWWCP in the next term, including the following that were applied to the proposal:

- Focus on Impaired Waterbodies –This suggestion is supported by TCEQ and EPA feedback provided to NCTCOG and the monitoring Participants. Atkins suggests a focus on monitoring impaired waterbodies will also help with TMDL efforts already underway in the area.
- Rapid bio-assessment improvements – Rapid bioassessments should continue to be part of the RWWCP, and entities that are not currently completing RBAs should be encouraged to do so.

Atkins recommends that the parameters that are recorded during bio-assessment chemical monitoring activities be expanded to include/match those of the wet weather monitoring to allow for easier comparison.

- Revise monitored pollutants: Pesticides and Herbicides – During the third permit term, Carbaryl was chosen to replace Diazaon that was undetected in the second permit term. Carbaryl was not detected in any watershed during the third permit term, and therefore was recommended that it no longer be monitored for the fourth permit term. Suggestions for replacement are dieldrin or atrazine.
- Revise monitored pollutants: indicator bacteria – Remove total coliforms from list of monitoring parameters. There is no recognized correlation between total coliforms and fresh water pathogens by TCEQ or EPA.
- Revise monitored pollutants: nutrients – Add ammonia nitrogen, nitrate nitrogen, and ortho-phosphate to the monitoring parameters for wet weather chemical monitoring. These additions would allow for better comparisons between bioassessment and wet weather chemical monitoring results.
- Revise monitored pollutants: metals – For the Duck Creek, Johnson Creek, and White Rock Creek (headwaters) subwatersheds, it is recommended that sampling of dissolved fractions of metals is conducted in order to determine the concentration of bioavailable metals.

Many of these recommendations were incorporated in the proposal for the fourth permit term.

1.1.3 Fourth Permit Term, 2018-2021

For the current permit term (2018 to 2022), the cities of Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, and Plano and the NTTA agreed to continue their regional partnership to work cooperatively through the NCTCOG to develop a revised regional monitoring program. TxDOT obtained a statewide permit incorporating both the Dallas and Fort Worth Districts, which removed the requirement to conduct wet weather monitoring. The revised regional monitoring program, which was approved by the TCEQ in 2017, incorporates the recommendations from the previous program outlined above.

The municipal regional participants proposed to continue to use a sampling plan that will effectively monitor at least 50% of their jurisdictional area by the end of the permit term. As in the previous term, in-stream watershed monitoring will be continued to obtain greater statistical robustness of the data by increasing the sampling at each location for a minimum of two years. The participants will maintain fixed sampling stations to the extent practicable. This will enable the data to be examined for trends and show improvements or decline in water quality within the fixed sampling period.

Watersheds that will be monitored were prioritized based on TMDLs and 303(d) streams, which were in watersheds that cover the jurisdictional area of the municipalities. Participants proposed to monitor in these impaired waterbodies in order to better assess the impacts of storm water on these impaired streams. It is primarily the same area monitored during the previous permit terms with some additional watersheds.

In October 2017, a consultant team led by Atkins and including subconsultants Freese and Nichols, Inc. (FNI) and Dougherty Sprague Environmental, Inc. was reselected to continue providing regional storm water monitoring services. Atkins will perform a variety of storm water monitoring compliance activities for the Cities of Arlington, Garland, Irving, Mesquite, and Plano, along with NTTA including storm water monitoring, bioassessments, and a BMP Analysis and Evaluation Plan. The bioassessment monitoring plan and BMP Analysis and Evaluation Plan will be provided in separate submittals. This document defines procedures for storm water sampling, sampling equipment and deployment, field trip preparation, sample retrieval, laboratory analysis, and post-sampling activities. Dallas and Fort Worth are part of the approved regional monitoring plan; however, this document is specific to the storm water monitoring activities for the cities of Arlington, Garland, Irving, Mesquite, Plano, and NTTA.

1.2 PURPOSE OF DOCUMENT

The purpose of this document is to fulfill the TPDES permit requirement held by Garland, Plano, and Irving to provide information to NCTCOG consulting staff on sample stations, equipment, personnel, and procedures to be used in bioassessments. It describes procedures to ensure data are adequate to support the assessment of stressor impacts. The goal of the bioassessments is to describe the aquatic communities of these streams and factors, including storm water runoff that may be impairing their ecological structure and function.

Both the EPA and TCEQ have an array of methods and approaches to use in bioassessments. Each has developed manuals outlining bioassessment methodology, but according to Barbour et al. (1999), protocols described are not "intended to be used as a rigid protocol without regional modifications. Instead, they provide options for agencies or groups that wish to implement rapid biological assessment and monitoring techniques."

1.3 ORGANIZATION OF DOCUMENT

This document includes sections addressing aspects of the monitoring plan for the project. All sections will be read and understood prior to initiating any monitoring activities.

Section 2.0 – Roles and Responsibilities: Roles and responsibilities of project personnel

Section 3.0 – Site Information: Sampling reaches and streams and rationale for their selection

Section 4.0 – Sampling Equipment: Description of sampling gear

Section 5.0 – Sampling Procedures: Procedures for field trip preparation, mobilization, and sampling

Section 6.0 – Sample Handling and Documentation: Sample handling and documentation procedures

Section 7.0 – Quality Assurance/Quality Control: Quality assurance procedures

Section 8.0 – Laboratory Analysis: Laboratory sample preparation and data reporting requirements

Section 9.0 – Post-Sampling Activities: Post-sampling activities

Section 10.0 – Data Analysis and Interpretation: Methods for data analysis and interpretation

Section 11.0 – Health and Safety: Procedures to ensure safety of field sampling personnel

Section 12.0 – References

2.0 ROLES AND RESPONSIBILITIES

The names and responsibilities of the organizations involved in the orchestration and implementation of the regional storm water monitoring program are described in this section.

2.1 MONITORING ORGANIZATION

The NCTCOG represents several municipalities in the greater Dallas-Fort Worth metroplex. Garland, Plano, and Irving are participating in the bioassessment monitoring.

2.2 MONITORING PLAN DEVELOPER

The monitoring plan was developed by FNI for Atkins. Atkins is responsible for:

- Reviewing and commenting on draft versions of the monitoring plan and helping FNI implement the monitoring plan.
- Helping NCTCOG coordinate bioassessment activities for Garland, Plano, and Irving.

2.3 FIELD SAMPLING ORGANIZATION

The Field Sampling Organization (FSO) will be the Atkins and FNI team. The FSO will execute the bioassessment activities defined in this monitoring plan. The FSO will conduct bioassessments based on protocols in the TCEQ *Surface Water Monitoring Procedures Manual* (TCEQ, 2012, 2014) and its updates (TCEQ, 2018b). These protocols are based in part on EPA rapid bioassessment methods (Barbour et al., 1999). The protocols involve assessment of ecological structure and function by sampling water quality, flow, habitat, fish, aquatic invertebrates, and other biota, including riparian vegetation and mussels. Indices of Biotic Integrity metrics will be calculated for fish and aquatic invertebrates. These indices will be compared to indices derived from reference streams in the same EPA ecoregion and published in TCEQ biological monitoring protocols (TCEQ, 2014) to help identify any degradation of those communities that has occurred. All sample locations are in the EPA’s Level IV ecoregion, 32a Texas Blackland Prairie.

Metrics for fish and benthic macroinvertebrate community indices of biotic integrity will be calculated according to TCEQ (2014) protocols and compared to those illustrated in "Table B-5 Ecoregions 27, 29, and 32 Metrics" for fish and "Table B-11 Metrics and Scoring Criteria for Kick Samples" for benthic macroinvertebrates. This comparison will help identify any degradation of those communities that has occurred. If more current information is available about fish and benthic macroinvertebrate communities from reference streams in this ecoregion, which is the Texas Blackland Prairies Level IV ecoregion (32a), it will be considered in the comparison.

2.4 ANALYTICAL LABORATORY

The laboratory will assure the quality of its sample analysis and reporting in accordance with guidelines in Sections 6.0, 7.0, and 8.0 of this monitoring plan. The laboratory will also:

- Review monitoring plan/quality assurance project plans (QAPP).
- Verify samples delivered to the laboratory meet applicable QA requirements listed in the monitoring plan/QAPP.
- Process and prepare samples for analyses of the monitoring constituents listed in Section 4.1 of this monitoring plan.
- Analyze collected samples according to the methods listed in Section 4.1 of this monitoring plan.
- Conduct all necessary QA testing according to Section 7.2 of this monitoring plan.
- Report test results and QA data to Atkins and FNI according to Section 8.0 of this monitoring plan.

2.5 COMMUNICATIONS PROTOCOL

Communications between Atkins and the FNI bioassessment sampling team will be conducted by the Project and Task Managers or designated personnel. Managers and appropriate subcontractor staff will be copied on scope or policy issues along with day-to-day messages regarding the weather.

Communications to and from NCTCOG and the sampling teams will be conducted through Derica Peters (or delegate) and Chad Richards (Atkins) for regional monitoring-related items, including sampling activities and laboratory results. Designated staff will be copied on scope and policy issues.

Each field team will consist of one field team leader and one field assistant. The office leader will remain in communication with the field team leader and coordinate between the field team and laboratory as necessary. The office leader will remain aware of potential weather and traffic concerns and alert the field team as appropriate.

3.0 SITE INFORMATION

This section describes the sampling sites. Desired conditions for the sites include the presence of a variety of mesohabitats (a minimum of one pool and one riffle in each study reach), location as far downstream in the watershed as possible but within city limits; safe access for sampling personnel; locations for overnight water quality meters where they are not likely to be stolen or vandalized; and ease of access in moving large amounts of sample gear between the vehicle and stream. Reference sites will not be sampled since data collected during this study will be compared to values for metrics for indices of biotic integrity published from reference sites sampled in the same ecoregion (TCEQ, 2014).

3.1 GARLAND

3.1.1 Rowlett Creek Below Atchison Topeka and Santa Fe Railroad Bridge

Rowlett Creek, 200 feet downstream of its confluence with Spring Creek in Garland, Texas, will be sampled in 2018 through 2021 (Figure 3.1). This study reach begins where the Atchison Topeka and Santa Fe Railroad bridge crosses the creek and extends 2,600 feet downstream. The closest house or business to the creek in this reach is about 600 feet from the creek. In some areas, the forested riparian buffer extends more than 600 feet from the creek; however, in other areas there is no forested riparian buffer. This reach has a variety of mesohabitats, including riffles and pools. Much of the bottom is limestone bedrock (Figure 3.2). Much of the flow at this site is treated wastewater discharged to Rowlett Creek upstream of Garland.

Rowlett Creek was observed by Aaron Petty and David Buzan, FNI, and Mike Wilson, city of Garland, from the recommended study reach downstream to the Pleasant Valley Road bridge in Garland on May 10, 2018. Aaron Petty and David Buzan also observed the reach of Rowlett Creek downstream of Brand Road. The selected reach was chosen for the following reasons.

- This is the same reach sampled in 2014–2015 and sampling it maximizes comparability of habitats and data to be collected with data collected in 2014–2015.
- The selected reach has two meanders and the downstream reach does not have meanders.
- The U.S. Geological Survey (USGS) measures stream flow of Rowlett Creek in the selected reach. The provisional flow in Rowlett Creek on May 10, 2018, was 87 cubic feet per second (cfs).

Figure 3-1: Rowlett Creek Downstream of Spring Creek in Garland

Figure 3-2: Rowlett Creek Downstream of the Atchison Topeka and Santa Fe Railroad Bridge on May 10, 2018. View is upstream towards Atchison Topeka and Santa Fe Railroad bridge. Photograph taken from the south shore (right bank).

- The selected reach is far enough upstream from Lake Ray Hubbard to minimize the probability of reservoir water quality or biological communities affecting samples and data collected in this study. A small waterfall up to 3 feet high is present downstream of the selected reach. The waterfall may partially block upstream movement of fish from Lake Ray Hubbard and will hopefully minimize the influence of reservoir fish on evaluations of the stream fish community.
- Much of Rowlett Creek downstream of Brand Road and downstream of the selected reach, which is wadeable, has smooth limestone bedrock bottom with little habitat variability.

3.2 PLANO

3.2.1 Rowlett Creek at Brown Branch

Rowlett Creek at Brown Branch in Oak Point Park and Nature Preserve upstream of E. Parker Road (Figure 3-3) will be sampled in 2018 and 2019. This location is on the east side of Plano. There are no bridges or dams for about 1.3 stream miles upstream of this site, which is buffered along most of both banks by a forested riparian zone in a public park. The flow on May 10, 2018 was estimated to be 15 cfs. The creek was relatively clear and had multiple riffles, runs, glides and meanders (Figures 3-4 and 3-5).

Figure 3-3: Rowlett Creek at Brown Branch in Plano

Figure 3-4: Rowlett Creek at Brown Branch in Plano on May 10, 2018.

Figure 3-5: Rowlett Creek at Brown Branch in Plano on May 10, 2018.

3.2.2 Rowlett Creek at Headwaters

Rowlett Creek at Headwaters will be sampled in 2020 and 2021 in Suncreek Park downstream of S. Alma Drive in Plano (Figure 3-6). It was observed on May 10, 2018. Creek flow was estimated at 5 cfs and riffles, runs, and pools were present (Figures 3-7 and 3-8). Much of the creek has a loose gravel substrate in this reach with steeply incised banks. The creek is surrounded by riparian buffer for over 1.2 miles upstream from the proposed study reach.

Figure 3-6: Rowlett Creek at Headwaters in Plano

Figure 3-7: Rowlett Creek at Headwaters in Suncreek Park in Plano on May 10, 2018.

Figure 3-8: Rowlett Creek at Headwaters in Suncreek Park in Plano on May 10, 2018.

3.3 IRVING

3.3.1 Delaware Creek

Delaware Creek will be sampled in 2018 and 2019 in Fritz Park upstream of E. Oakdale Road in south-central Irving (Figure 3-9). It was observed on May 10, 2018. Creek flow was estimated at less than 1 cfs and riffles, runs, and pools were present (Figures 3-10 and 3-11). Review of aerial imagery in Google Earth suggests the creek may be intermittent at times at E. Oakdale Road about 1,000 feet downstream of the study reach. Much of the creek has a concrete rubble substrate in this reach with steeply incised banks. The creek is substantially modified beginning 0.5 stream mile upstream of the upstream end of the study reach. For several stream miles upstream, the creek is embedded in a trapezoidal concrete channel for long reaches and impounded in on-channel reservoirs in other reaches. There is limited riparian buffer along the east (left) shore and substantial riparian buffer along most of the west (right) shore in the proposed study reach.

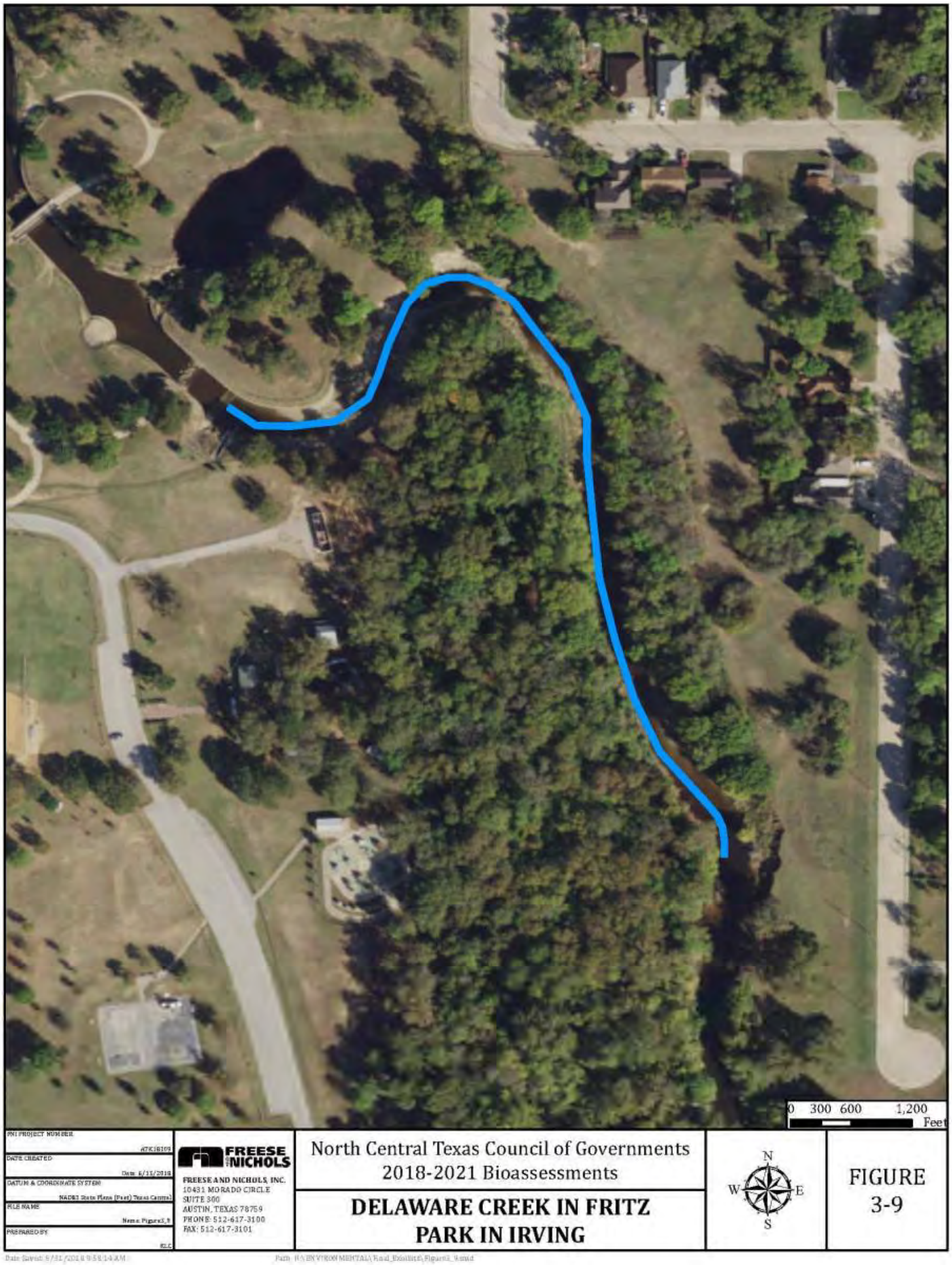

Figure 3-9: Delaware Creek in Fritz Park in Irving

Figure 3-10: Delaware Creek in Fritz Park in Irving on May 10, 2018.

Figure 3-11: Delaware Creek in Fritz Park in Irving on May 10, 2018.

3.3.2 Estelle Creek

Estelle Creek will be sampled in 2020 and 2021 downstream of W. Pioneer Dr in southwest Irving (Figure 3-12). It was observed on May 10, 2018. Creek flow was estimated at less than 0.5 cfs, and riffles, runs, and pools were present (Figures 3-13 and 3-14). There are two concrete drop structures on the creek in the study reach. Review of aerial imagery in Google Earth suggests the creek may be intermittent at times in the study reach. The creek is impounded in an on-channel reservoir surrounded by apartment complexes for 0.4 stream mile immediately upstream of the study reach, and upstream from that reach it is confined to a trapezoidal concrete channel for another 1.3 stream miles upstream. Riparian buffer is limited along both banks of the creek.

Figure 3-12: Estelle Creek Downstream of W. Pioneer Drive in Irving

**Figure 3-13: Estelle Creek Downstream of W. Pioneer Drive in Irving.
View upstream towards upstream end of study reach.**

Figure 3-14: Estelle Creek Downstream of W. Pioneer Drive in Irving

4.0 SAMPLING EQUIPMENT

The following sections describe equipment expected to be used. Maintenance and quality assurance/quality control (QA/QC) guidelines for equipment are in Section 7.0. It should be noted that a Texas Parks and Wildlife Department (TPWD) scientific collection permit will be kept with staff in the field, and the TPWD will be notified at least 24 hours prior to field sampling.

4.1 WATER QUALITY

A Yellow Springs Institute (YSI) water quality meter 6920 or equivalent will be used for the measurement of water temperature, DO, specific conductivity, turbidity, and pH at each station. The instrument(s) will be equipped with optical DO and turbidity probes.

Instantaneous grab samples for laboratory analysis of water chemistry will be taken using sample containers provided by the laboratory.

4.2 FISH

Fish will be collected with a combination of backpack electrofishing and seining. The backpack electrofisher employed will be a variable-voltage Smith-Root Model LR-24 battery-powered backpack unit or comparable unit. Electrofishing will be conducted throughout the entire wadeable reach established during the habitat evaluation. Personal protection gear required for electrofishing will include rubber gloves, chest waders, and life vests. Dip nets with insulated or fiberglass handles with 1/8-inch mesh will be used to collect stunned fish. Fish will be placed alive in a bucket of stream water for later processing.

A variety of seines will be available, including 10-foot x 4-foot x 1/8-inch mesh, 20-foot x 6-foot x 1/8-inch mesh, and 30-foot x 6-foot x 3/16-inch mesh seines. Choice of seine will depend on the habitat conditions, and different seines may be used.

Other gear required for fish sampling and processing will include a measuring board (1-millimeter [mm] increments) to measure fish length, preservative (10 percent formaldehyde), 1-gallon sample jars, and a camera. An electronic scale capable of measuring fish weight to the nearest gram will be available if needed. Field books/keys, including *Freshwater Fishes of Texas* (Thomas et al., 2007) and *An Annotated Checklist of the Freshwater Fishes of Texas, with Keys to Identification of Species* (Hubbs et al., 2008) will be used as a guide for identifying fish in the field. The following is a list of field equipment needed for fish sampling:

- Smith-Root Model LR-24 battery-powered backpack unit or equivalent equipped with anode ring pole and stainless-steel cable cathode;
- Dip nets with insulated or fiberglass handles equipped with 1/8-inch mesh;
- Rubber gloves;
- Rubber or neoprene waders;
- A minimum of one each of a 10-foot x 4-foot x 1/8-inch mesh, 20-foot x 6-foot x 1/8-inch mesh, and 30-foot x 6-foot x 3/16-inch mesh seines;
- Buckets or tubs: 2- or 5-gallon to carry and hold fish;
- 14-foot jon boat with motor and trailer;
- Paddles and life vests;
- Global Positioning System (GPS) unit to measure locations of sample collections and distances of seine hauls;
- Field forms and field notebooks to record data;
- Maps illustrating sample reaches;
- 10% formalin and jars to collect voucher specimens;
- Fish identification keys: minimum of *Freshwater Fishes of Texas* (Thomas et al., 2007) and *An Annotated Checklist of the Freshwater Fishes of Texas, with Keys to Identification of Species* (Hubbs et al., 2008);
- TPWD scientific collection permit;
- Measuring board (graduated in millimeters); and,
- Scale: capable of weighing fish to the nearest gram.

4.3 BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrates will be collected with a 5-minute kicknet sample in a representative riffle at each site and preserved in the field with 70% ethanol. Sample analysis will be conducted by Jack Davis, subcontractor. The following is a list of field equipment needed for benthic macroinvertebrate sampling:

- Long-handled D-frame dip net equipped with 0.5-mm mesh net;
- Stopwatch to time sample collection;
- Sample tray, rinse bottle, and tweezers to review the sample and ensure adequate numbers of organisms are collected;
- Sample bottles, waterproof labels, and 70% ethanol for transporting organisms to the laboratory;

- GPS to record the location of benthic macroinvertebrate sample collection; and,
- TPWD scientific collection permit.

4.4 MUSSELS

Mussels will be qualitatively sampled while biologists are seining, electrofishing, kick-netting, measuring habitat, and collecting water samples. Sampling will involve observing the creek bottom while biologists are moving upstream and downstream. Some locations will be probed by hand to determine if mussels may be present.

4.5 HABITAT

Habitat assessments will be conducted during the first sample event each year at six transects across the stream. Tools used to describe habitat characteristics are listed in Table 4-1.

Table 4-1. Habitat Equipment List

Parameter	Equipment
Stream water width	Tape measure
Bank slope	Clinometer
Canopy cover	Densiometer
Geographic coordinates	Global positioning system unit
Depth	Wading rod
Flow	SonTek FlowTracker Handheld-ADV
Photographs	Digital camera
Water transparency	Secchi disk

5.0 SAMPLING PROCEDURES

Sampling procedures will be those described in TCEQ (2012 and 2014) unless modified for site-specific conditions.

5.1 SAMPLE TIMING

Each selected site will be sampled twice per year for two consecutive years. Rowlett Creek in Garland will be sampled twice per year for each of the 4 years. One sample at each site each year will be collected during the period from July 1 through September 30, referred to by the TCEQ (2012) as the "critical period." One sample is collected during this period because water temperatures are usually high and stream flows low compared to flows during most of the year.

Water's ability to contain DO is reduced as temperature increases. Therefore, DO levels may become critically low for aquatic life during warmer times of the year (i.e., summer). Summer aquatic plant growth may exhibit large swings in photosynthesis between day and night. Large swings in photosynthesis combined with greater amounts of aquatic plants in the summer can drop DO to very low levels in the early morning. Early morning declines in oxygen result from lack of photosynthetic oxygen production during the night combined with relatively high rates of oxygen consumption by aquatic plants and animals in the warm stream.

The second sample at each site each year will be collected during the period from March 15 through June 30 or October 1 through October 15, referred to as the "index period" by the TCEQ (2012). The TCEQ (2012) recommends bioassessment samples be collected when flows are at or only slightly above low flows.

The sampling schedule for this project is:

Garland

- Rowlett Creek downstream of Atchison Topeka and Santa Fe Railroad Bridge: Twice in 2018, 2019, 2020 and 2021

Plano

- Rowlett Creek at Headwaters (Suncreek Park): Twice in 2018 and twice in 2019.
- Rowlett Creek at Brown Branch (Oak Point Park and Nature Preserve): Twice in 2020 and twice in 2021

Irving

- Delaware Creek at Fritz Park: Twice in 2018 and twice in 2019
- Estelle Creek downstream of W. Pioneer Drive: Twice in 2020 and twice in 2021

5.2 NOTIFICATION

Contacts for the NCTCOG, Garland, Plano, Irving, and the Atkins project manager will be notified at least 7 days prior to each sampling event and be invited to participate to the extent they wish. TPWD Law Enforcement will be notified no more than 72 hours prior to, and no later than 24 hours prior to biological sample collection. If excessive rain or some other event beyond the control of sampling personnel forces cancellation of a sampling trip, contacts for the NCTCOG, Garland, Plano, Irving, and the Atkins project manager will be notified the same day the decision is made to cancel sampling.

5.3 SAMPLE LOCATION IDENTIFICATION

Upon arrival at the site, the sample team will scout the stream reach to be sampled from the shore. The upstream and downstream ends of the study reach will be marked with GPS. The study reach will extend at least 150 meters but no more than 500 meters. Habitat types and their locations will be noted along the study reach. The study reach should include at least one riffle and one pool. This first detailed reconnaissance of the stream will be used to determine locations for water quality, fish, benthic macroinvertebrate, mussel, and habitat sampling. The water quality sampling location will be immediately upstream of the reach in an area for safe, secure, water quality sampling.

5.4 WATER QUALITY

A precalibrated YSI Series 6920 water quality meter or equivalent will be placed in the stream at a secure location during the day to measure DO during the night and morning when DO values may decline to levels injurious to aquatic life. It will record data every 30 minutes. Temperature, specific conductance, pH, turbidity, and DO will be recorded every 30 minutes for the time extending through the biological and habitat sampling. A back-up calibrated water quality meter will be available to ensure data are collected during biological sampling in case the primary meter fails.

Field water quality (temperature, specific conductance, pH and DO) will be measured next to the meter deployed for 24-hour measurements. These measurements will be made when the 24-hour meters are deployed and again when retrieved and will be made with a calibrated water quality meter to document any drift in measurements of water chemistry made by the 24-hour meters.

Water chemistry samples for laboratory analysis will be collected in clean containers provided by the laboratory. Samples will be collected in the proximity of the YSI water quality meter at a location representative of stream quality. Samples will be collected at a depth of a foot where stream depth allows sampling without disturbing the bottom. Samples will be placed immediately on ice in an ice chest for transport to the laboratory. Water chemistry samples will be collected upstream of all other sample collection to avoid changes in water quality resulting from sampling, particularly from disturbed sediments.

Samples will be collected by submerging a clean sample container in a representative portion of the flowing stream to a depth of 1 foot. Parameters listed in Table 5-1 will be analyzed by the laboratory.

Table 5-1. Water Quality Constituents to be Analyzed

Constituent	Method	Detection Limit	Maximum Holding Time
E coli	SM9222D	10 colonies/100 mL	6 hours
Nitrogen as nitrate and nitrite	300A	0.03 ppm	48 hours
Phosphorus as orthosphosphates	200.7	0.005 ppm	48 hours

5.5 FISH

Given the variability of habitats, flow regimes, and water chemistry, professional judgment will be used to assess sampling necessary to characterize fish assemblages. Fish sampling describes species present, their relative abundance, and external condition. Fish will be collected at each station using a combination of backpack electrofishing and seining. Fish will be sampled until no new species are collected. Habitats will include riffles, runs, glides, and pools. Sampling protocols described here are included in more detail in TCEQ (2014). Sampling will be conducted from the downstream end of the study reach toward the upstream end of the study reach. Fish will be sampled in each habitat type and combination of habitat types.

Electrofishing will be conducted throughout the habitats identified during the stream reconnaissance. Electrofishing will be conducted for a minimum of 15 minutes and continue until no new species are collected and all habitat types are sampled. All fish observed will be collected. Notes will be made on fish that escape capture. Sampling will be conducted from downstream to upstream to help prevent clouding the water and reducing visibility due to disturbing bottom sediments.

Seining will be used to sample pools up to approximately 6 feet deep, riffles, and runs that are free of debris. Seines of variable sizes will be used to accommodate the type of habitat sampled. As recommended by TCEQ (2014), a minimum of six seine hauls covering at least 60 meters will be conducted. Seining will continue until no new species are collected.

Fish will be identified in the field to the lowest taxonomic level practical. All individuals will be measured (total length) to the nearest millimeter. Any external anomalies on sampled fish will be recorded. Two voucher specimens of each species less than 1 foot long will be preserved in the field with 10% formalin. Voucher photographs will be collected of specimens, which can be visually and clearly identified to species in a photograph. Fish identification will be conducted by a degreed fisheries biologist knowledgeable in fish taxonomy.

5.6 BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrates sampling will be collected from the riffle with the highest proportion of cobble/gravel substrate. A 5-minute kicknet sample will be collected by placing the straight edge of the net with 500-µm (0.5-mm) mesh firmly on the bottom downstream of the biologist. The biologist will vigorously disturb the substrate within 1 foot of the net so the water current carries invertebrates knocked loose from the bottom into the net. The biologist continues this effort, zigzagging back and forth and sampling all microhabitats in the riffle while moving upstream for 5 minutes.

The kicknet is then emptied into a tray, and a quick estimate of the number of organisms is made. The sample will be preserved in a labeled bottle with 70% ethanol containing a sample label on waterproof paper. If there are less than 140 organisms in the sample, another 5-minute kicknet sample will be collected and combined in the sample jar with the first sample. This process will continue as necessary until at least 140 organisms are in the sample bottle. The sample will be field-picked and preserved in a labeled bottle with 70% ethanol containing a sample label on waterproof paper.

Although preliminary reconnaissance indicates the presence of riffles at all sites, snags and accumulations of leaf litter will be checked and notes recorded on the types and relative abundance of benthic macroinvertebrates using those habitats.

5.7 MUSSELS

Qualitative sampling of mussels to determine if mussels are present, and if so, which species are present, will be conducted because of growing interest in native mussel populations and factors affecting their distributions. Fifteen of 52 known species in Texas are on the state-threatened list, and 6 are candidates for federal listing (TPWD, 2011a). Two state-threatened species, the Louisiana pigtoe (*Pleurobema riddelli*) and the Texas heelsplitter (*Potamilus amphichaenus*), are listed by TPWD as state threatened and possibly occurring in Dallas County. Relatively little is known about water quality requirements of these mussels. Since intensive sampling will be conducted at these locations, the presence/absence of mussels will be relatively easy to document. Their presence/absence may not significantly enhance interpretation of water quality impacts; however, considering the relatively minimal level of effort involved in sampling them, information gained will be helpful in understanding if conditions are suitable for mussels and indicating whether a state-listed species may be present.

The streambed, wherever visible, will be visually inspected for live and dead mussels. Hand-sampling will be conducted at each of the six habitat transect locations and at selected sites in the study reach considered possible habitat for mussels. Hand-sampling consists of sifting the substrate by hand. Depth, substrate type, and area sampled will be recorded for each sample point. The condition of collected mussels will be characterized according to TPWD (2011b) as:

- **Live**
- **Very recently dead** (soft tissue remains attached to the shell; in good condition essentially as it would be in a living specimen; internal and external colors are not faded)
- **Recently dead** (no soft tissue remains, but otherwise in good condition (looking like a living specimen that had been killed and cleaned); internally, nacre is glossy and without evidence of algal staining, calcium deposition, or external erosive effects; internal and external colors are not faded)
- **Relatively recently dead** (in good condition, but nacre is losing its glossy nature; algal staining, calcium deposition, and/or external erosive effects are evident on the nacre; internal and external colors often faded somewhat)
- **Long dead** (early signs of internal and external erosion, staining, calcium deposition, or some combination of these; most or all of the internal coloration and glossy nature has faded; epidermis with major sections absent, or if present, clearly aged and flaking)
- **Very long dead** (significant signs of erosion, staining, and calcium deposition more widely pronounced than above; coloration often faded white or nearly so; relatively little intact epidermis left; for specimens in erosive environments, internal and external features often weathered and smoothed, or otherwise exfoliated; shells often chalky, brittle, and crumbling)

- **Subfossil** (little or no epidermis; nacre faded white and entire shell often white; sometimes with signs of erosion, staining, or calcium deposition; typically chalky and powdery to the touch; shells often brittle and crumbling)

Live mussels will be photographed and returned to the same part of the stream from which they were collected. If mussel valves are found, they will be identified and photographed.

5.8 HABITAT

Habitat evaluations will be conducted on the first sample trip to each station each year according to TCEQ protocols (TCEQ, 2014). The first transect will be conducted at the downstream end of the reach. Five more transects will be measured equidistant from each other with the last transect at the upstream end of the study reach. If there are some habitat types not measured in one of the six transects, additional transects will be measured with a minimum of one transect in each mesohabitat (riffle, pool, run, glide) type available. The coordinates of each transect at the midstream point will be documented with a hand-held GPS unit. The points where each transect intersects the right and left banks will be marked with surveyor's tape, so those points can be revisited.

Each transect will be perpendicular to the stream channel and serve as an observation point for habitat characterization. Stream width, bank slopes, bank erosion potential, depth (at a minimum of 11 points across the transect and at the thalweg), habitat type (riffle, pool, run, or glide), substrate composition, aquatic plants, instream cover, tree canopy, and riparian cover will be measured and recorded for each transect. Observations of stream use, maximum pool depth, channel modifications, channel sinuosity, reach slope, and channel flow status will be made over the entire reach.

On the second sample trip in the same sample year, width of the stream at each transect will be measured, photographs taken of each transect, and observations made of the bank and canopy conditions. If best professional judgment indicates habitat conditions have substantially changed, all habitat measurements from the first sample trip will be repeated. Data will be recorded on standardized forms provided by TCEQ (2014).

Stream flow will be measured at each station during each sample event (TCEQ, 2012). A location within the stream, free of debris with relatively smooth channel morphology and laminar flow, will be selected to measure velocity. Velocity will be measured with a Sontek FlowTracker acoustic Doppler flow meter. Measurements of depth (to the nearest 0.1 foot) and velocity will be made at approximately equal flow intervals along a transect perpendicular to stream flow. If the channel is less than 10 feet wide, at least

10 velocity and depth measurements will be made. If the stream is greater than 10 feet wide, velocity and depth will be measured at between 20 and 30 points across the stream depending on shape of the streambed and the requirement to ensure no measurement section contains more than 10% of the total flow.

6.0 SAMPLE HANDLING AND DOCUMENTATION

This section describes the manner in which samples will be handled and tracked from the time of sample collection/retrieval to laboratory analysis.

6.1 SAMPLE DOCUMENTATION

Sample documentation will be recorded for each sample collected. Information in bold will be placed on sample labels as well as the field logs:

- Geographic coordinates
- Unique sample identifier (represented by the “Watershed, City”)
- Time and date
- Sample collectors
- Depth at sample point
- Substrate type at sample point
- Mesohabitat type
- Preservative
- Method of collection

Collection information will be entered on water-proof field forms or directly into a database on a field computer. Observations relevant to sample collection conditions and location will be noted. Sample tracking logs will include sample label identifiers, dates, times, locations, and destination, and will be completed in the field.

6.2 WATER QUALITY

Water quality samples will be collected in clean, labeled, approved containers with appropriate preservative as provided by the analytical laboratory. Within 5 minutes of collection, all water samples will be placed on enough ice to lower water temperatures to less than 4 degrees Celsius °C) in less than 30 minutes and maintain water temperatures at or below 4°C until samples are delivered to the laboratory. Chain-of-custody forms will be completed and will accompany each sample to the laboratory. Samples will be delivered to the laboratory within the shortest holding time for any of the constituents.

Water quality meters, which have collected data overnight and in the morning, will be downloaded and post-calibrated in the field.

6.2.1 Chain-of-Custody

A chain-of-custody document must accompany each sample. Samples must be under the custody of field personnel until relinquished to a representative of the laboratory. A sample is defined as being under a person's custody if any of the following conditions exist: (1) it is in their possession, (2) it is in their view after being in their possession, (3) it was in their possession and they locked it up, or (4) it is in a designated secure area.

After the samples have arrived at the laboratory, they should remain under the custody of the laboratory.

Each person receiving or relinquishing custody of the samples must sign and date the chain-of-custody when transfer of sample custody occurs. Documentation of sample possession must include the following:

- Sample description/identification;
- Date and time of sample collection;
- Type of sample (composite or grab);
- Preservative used;
- Sample container type;
- Analyses required;
- Name of collector(s);
- Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory; and,
- Bill of lading or transporter tracking number (if applicable).

Preformatted chain-of-custody forms will be used to document the transfer of samples to the laboratory and the analysis to be conducted on each bottle. A sample chain-of-custody is provided in Appendix A.

6.3 FISH

Most fish will be analyzed alive in the field and released after appropriate measurements are made. Collected fish will be held in buckets or tubs of water until fish sampling is completed. The following information from each sample of fish will be recorded:

- Number of each species of fish and external anomalies observed;
- Mesohabitat sampled;
- Sample gear;

- Length of seine haul, type of seine used, and time of electrofishing;

Two individuals (less than 1-foot-long total length) of each species will be retained as voucher specimens for 5 years.

Each fish sample will be analyzed for each habitat type in which it is collected. Each fish will be identified to species, counted, and observed for external anomalies. Some fish may be measured and weighed if it appears their length:weight relationship may deviate substantially from normal values.

Specimens that cannot be identified in the field will be preserved in the field and returned to the FNI Austin laboratory for identification.

Index of Biotic Integrity metrics will be calculated and compared to metric values in "Table B-5 Ecoregions 27, 29, and 32 Metrics" for fish (TCEQ, 2014). The metric values in Table B-5 (TCEQ, 2014) were calculated from reference streams for the same ecoregion from which samples will be collected.

6.4 BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrate samples will be analyzed by Jack Davis, a qualified subcontractor with over 40 years of experience analyzing freshwater benthic macroinvertebrates in Texas. Laboratory analysis will include number of each taxon of benthic macroinvertebrates observed. Identification will be at least to genus, family, or order based on TCEQ (2014) guidance for rapid bioassessment samples. When possible, identification will be to the lowest taxonomic level possible. Index of Biotic Integrity metrics will be calculated and compared to metric values in "Table B-11 Metrics and Scoring Criteria for Kick Samples" (TCEQ, 2014). The metric values in Table B-11 (TCEQ, 2014) were calculated from reference streams.

6.5 MUSSELS

Live or dead mussels will be photographed, measured, and returned to the portion of the stream from which they were collected. Representative valves of dead mussels may be collected if necessary for identification. Representative specimens will be measured (valve length and height) and identified to species.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

Data of known and documented quality are essential to the success of any monitoring or sampling program. Data quality objectives clarify the intended use of the data, define the type of data needed to support the decision, identify the conditions under which the data should be collected, and specify tolerable limits on the probability of making a decision error due to uncertainty in the data. Table 7-1 summarizes data quality objectives for the bioassessment field sampling. Data quality objectives are developed by data users to specify the data quality needed to support specific decisions.

The following sections provide the requirements for meeting data quality objectives. Specifically, these requirements are designed to ensure the quality of data collected in the field, preserve the integrity of samples in transit, and reduce errors in data processing.

Field personnel have used the bioassessment protocols outlined since 1990. Field personnel will review the relevant TCEQ (2012 and 2014) sampling protocols summarized in Sections 4 and 5 above. The same personnel will collect and analyze all data, which should minimize experimental error associated with different sampling personnel.

The first step in ensuring data quality is to collect samples under stable, normal spring to summer flow conditions. Flow will be monitored remotely by checking real-time flow data from the USGS gauge on Rowlett Creek at Sachse (USGS gauge 08061540) and the USGS gauge on Bear Creek in Grand Prairie (USGS gauge 0804956950). Sampling will be avoided to the extent possible when flows exceed the historical daily median flows at these locations by 50% of the daily median flow or within 4 days of the passage of a pulse that exceeded 15 times the daily median flow for the scheduled sample date. Collecting data at relatively stable low to normal flow conditions will help minimize temporary impacts to ecological conditions that can mask the evaluation of the biological community health.

Table 7-1. Data Quality Objectives

Parameter	First Year First Sample	First Year Second Sample	Second Year First Sample	Second Year Second Sample
Sample date	X	X	X	X
Sample time	X	X	X	X
Sample collectors	X	X	X	X
Fish community				
All species present	X	X	X	X
Percent abundance of each species in the fish community to the nearest percent	X	X	X	X
Percent of total fish with external anomalies	X	X	X	X
Photographs of external anomalies	X	X	X	X
Two voucher individuals for each species	Voucher specimens collected as necessary			
For each fish sample				
Mesohabitat sampled	X	X	X	X
Sampling effort (area seined or time electrofished)	X	X	X	X
Species collected	X	X	X	X
Number of each species collected	X	X	X	X
Index of Biotic Integrity	X	X	X	X
Benthic macroinvertebrate community				
Species present in riffle	X	X	X	X
Percent abundance of each species in the benthos	X	X	X	X
Index of Biotic Integrity	X	X	X	X
Two voucher individuals for each species	Voucher specimens collected as necessary			
Water quality (measured every 30 minutes from before midnight Central Standard Time through 10:00 a.m. the next day)				
Set of water chemistry samples for delivery to lab	X	X	X	X
Temperature ±0.15°C, reported to the nearest 0.1°C	X	X	X	X
pH ±0.2, reported to the nearest 0.1 standard units	X	X	X	X
Specific conductance, 0.001 mS/cm, reported to the nearest 0.10 mS/cm	X	X	X	X
DO ±0.2 mg/L, reported to the nearest 0.1 mg/L	X	X	X	X
Turbidity, ±2% of the reading or 0.3 NTU				
Secchi disk transparency, reported to the nearest centimeter	X	X	X	X
Flow, reported to the nearest 0.1 cfs	X	X	X	X
Mussels				
Species present and relative abundance by area or sample time	X	X	X	X
Habitat				
For each of a minimum of six transects and at least one transect in each mesohabitat				
Wetted stream width to the nearest inch	X	X	X	X
Left bank slope to the nearest degree*	X		X	
Right bank slope to the nearest degree*	X		X	
Left bank erosion potential, to the nearest percent*	X		X	
Right bank erosion potential, to the nearest percent*	X		X	
Habitat type*	X		X	
Dominant substrate*	X		X	
Right bank dominant riparian vegetation*	X		X	
Left bank dominant riparian vegetation*	X		X	
Macrophyte presence*	X		X	
Algae presence*	X		X	
Types of instream cover*	X		X	
Percent gravel to the nearest 10%*	X		X	
Percent instream cover to the nearest 10%*	X		X	

Parameter	First Year First Sample	First Year Second Sample	Second Year First Sample	Second Year Second Sample
Instream cover types*	X		X	
Width of natural buffer, right bank, to the nearest foot*	X		X	
Width of natural buffer, left bank to the nearest foot*	X		X	
Geographic coordinates at middle of transect*	X		X	
Stream depth at each of 11 points to the nearest 0.1 foot*	X		X	
Thalweg depth to the nearest 0.1 foot*	X		X	
Percent canopy to the nearest percent*	X		X	
Two photographs of each transect	X	X	X	X
Maximum pool width to the nearest inch	X		X	
Maximum pool depth to the nearest 0.1 foot	X		X	
Number of riffles	X		X	
Description of bank conditions in relation to the first event		X		X
Description of canopy conditions in relation to the first event		X		X
Number of bends in reach and characterization of each bend as well-defined or moderately well-defined	X		X	
Percent of channel bottom covered with water to the nearest 5%				

* Parameters with an asterisk may have to be sampled again during the second sample of the year if there has been substantial change in habitat.

7.1 WATER SAMPLES

The sampling team will not ship samples for weekend delivery to the water chemistry laboratory unless prior plans for such a delivery have been agreed upon with the sample control center.

Once a sample is collected, sample integrity is maintained through careful and controlled sample handling, storage, and preservation procedures. Samples are expected to remain in field sampling team custody until delivery to the water chemistry laboratory.

7.2 LABORATORY QUALITY ASSURANCE FOR WATER SAMPLES

TTI Laboratories (and/or their subcontracted laboratories) will analyze samples collected. The laboratory will certify the precision and accuracy of all analytical data and document all phases of sample handling, data acquisition, data transfer, report preparation, and report review.

7.2.1 Reference Materials and Reagents

Whenever possible, primary reference materials for instrument calibration, QC spikes, and performance evaluations will be obtained from the National Bureau of Standards (NBS) or the EPA. In the absence of available reference materials from these organizations, other reliable sources will be sought. Such secondary reference materials may be used for these functions provided that they are traceable to an NBS standard.

Laboratory reagent quality will be sufficient to minimize or eliminate detectable concentrations of analytes in laboratory blanks. Furthermore, reagents will not contain other contaminants that interfere with sample analysis.

7.2.2 Laboratory Data Management

A. Laboratory Data Collection

In addition to the data recorded in field logbooks and chain-of-custody forms, data that describe sample processing will be recorded in laboratory notebooks. Laboratory notebooks will contain the following information:

- Date of processing;
- Sample numbers;
- Case number;
- Analyses performed;
- Calibration data;
- QC samples;
- Concentrations/dilutions required;
- Instrument readings;
- Special observations; and.
- Analyst's signature.

B. Laboratory Data Logging

TTI Laboratories (and/or their subcontracted laboratories) will utilize an established system for sample check-in, tracking of samples through the laboratory, assignment of laboratory analyses, and sample check-out. The system will provide for management review of all laboratory data before the issuance of laboratory reports. The review will be accomplished on two levels: (1) review of raw data for each analysis, and (2) review of the final results to check for consistency or agreement of the results between all parameters.

C. Laboratory Data Reduction

For methods that utilize a calibration curve, sample responses will be applied to the linear regression line to obtain an initial raw result that will be factored into equations to estimate the concentration in the original sample. Rounding will only be performed after the final result has been obtained to minimize rounding errors. Copies of the raw data and the calculations used to generate the final results will be retained on file to allow reconstruction of the data reduction process at a later date if necessary.

At the completion of a set of analyses, all calculations will be completed and checked by the analyst. The associated QC data will be entered onto QC charts. If all data are acceptable, the data summaries will be submitted to the laboratory project manager for review. If QC samples do not meet acceptance criteria, the appropriate laboratory project manager will be notified and corrective action will be taken as specified in Section 7.2.3.

D. Laboratory Data Review

System reviews will be performed at all levels. The individual analyst will constantly review the quality of data through calibration checks, QC sample results, and performance evaluation samples. These reviews will be performed prior to submission to the laboratory project manager.

The laboratory project manager will review data for consistency and reasonableness with other data and will determine if QA/QC program requirements have been satisfied. Selected hard copy output of data, such as chromatograms and spectra, will be reviewed to verify that results were interpreted correctly. Unusual or unexpected results will be reviewed, and a resolution will be made as to whether the analysis should be repeated. In addition, the laboratory project manager will recalculate selected results to verify the calculation procedure.

7.2.3 Corrective Actions

An analysis will be considered to be out of control when it does not conform to the QA/QC protocols specified by this document, applicable methods, or standard operating procedures. When an analysis is out of control, the analyst who identifies the problem will document the occurrence and notify the laboratory project manager. The analyst, working with the laboratory project manager, will determine the cause of the problem and take appropriate corrective action. Analysis may not resume until the problem has been corrected. Restoration of analytical control will be demonstrated by generating satisfactory calibration and/or QC sample data.

Data generated concurrently with an out-of-control system will be evaluated for usability in light of the nature of the deficiency. If the deficiency does not impair the usability of the results, the data will be reported and the deficiency noted in the laboratory data report (e.g., a constituent is detected in a laboratory blank but not in sample analyses). Where sample results are impaired, the project manager will be notified. After the error has been corrected, the analysis will be rerun and the data can be reported. The laboratory project manager will outline the error and the corrective action in a QA report. If the cause of the error cannot be identified, the laboratory project manager will summarize the procedures and QA/QC used to analyze the sample and provide a statement of validity for the sample results.

Problems encountered during the field activities will be reported by the designated field staff as soon after discovery as possible. The Atkins project manager will be responsible for ensuring that corrective actions produce satisfactory results in a timely manner. Outcomes of those actions and their effect or potential effect on the data will be reported to Atkins and NCTCOG.

Results of performance or systems audits or internal QC analyses may trigger corrective action within the designated laboratory and Atkins project team. However, it is generally the responsibility of the laboratory analyst or field personnel to initiate laboratory or field corrective actions, respectively.

7.3 FIELD INSTRUMENT/EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE REQUIREMENTS

All field equipment will be inspected prior to sampling to ensure it will collect accurate data of appropriate precision (e.g., electrofishers are operating correctly, nets are without defects, water quality meters properly calibrated, absence of contaminants). Inspection of field equipment will occur in advance of the field operation to allow time for replacement or repair of defective equipment. The field team will be equipped with proper backup equipment to prevent lost time on site in case of equipment failure in the field.

7.3.1 Water Quality and Flow Meters

The water quality meters and Sontek Flow Tracker flow meter will be inspected prior to sampling activities and the water quality meters calibrated within 24 hours of the start of sample collection.

7.3.2 Backpack Electrofisher

The Smith-Root Model Lr-24 is powered by a battery. The battery and back-up battery will be charged before sampling. Electric current is delivered through an anode ring pole and a "rat tail" cathode. Both electrodes should be inspected for electrolysis prior to sampling. If corrosion is present, electrode surfaces should be polished with an emery cloth or comparable abrasive. The electrofisher offers multiple voltage, duty cycle, and frequency settings. Operators will be familiar with the settings prior to field work. Since water resistance to electrical charge differs among waterbodies, settings should be tested at each stream to identify settings that maximize the number of fish collected.

Dip net handles used for electrofishing are made of fiberglass or insulated to prevent electrocution of sampling personnel. The dip net should be inspected for holes prior to deployment to avoid sample loss.

7.3.3 Seines

Seines will be inspected for holes prior to sampling and repaired as necessary.

7.4 SAMPLE LABELS

Adequate materials for labeling samples, including pre-printed sample labels on water-proof paper and pens with black indelible ink, will be prepared prior to traveling to the field. Each sample (i.e., collection of fish from a single location) will be double-labeled by affixing a sample label on the outside of the container and placing a label inside the container. All sample label entries will be made with black indelible ink. The sample label will accompany each sample through data entry. Each sample label will include the information described in Section 6.0.

7.5 DATA MANAGEMENT

Upon completion of sampling and sample analysis, all paper field records and chain-of-custody forms will be reviewed by the FSO for completeness and correctness. Any discrepancies in records will be reconciled with field personnel.

All data will be entered in an Excel spreadsheet. At least 10% of data entered will be checked for data entry errors. Data quality will be assessed by comparing entered data to original data or by comparing results with measurement criteria to determine whether to accept, reject, or qualify the data. Basic data retrievals will be made to review data and identify possible data entry errors. All computer files and paper records associated with the project will be archived until 5 years after project completion, approximately 2026.

8.0 LABORATORY ANALYSIS

TTI Laboratories (and/or their subcontracted laboratories; http://www.ttilabs.com/) in Arlington [(817) 861-5322] will be alerted when sampling is scheduled to begin so that the laboratory can prepare for receipt and analysis of samples. After sample collection, the laboratory will be informed that samples are being transported to the laboratory to allow them to have someone receive the samples and add preservatives if necessary and to begin necessary analyses within specified holding times.

8.1 LOST OR INADEQUATE SAMPLES

The laboratory will notify the FSO immediately if a sample is lost or is determined to be inadequate according to the communication protocol specified. The FSO will conduct a resampling effort for lost or inadequate samples.

8.2 DATA REPORTS

The laboratory will submit data reports via e-mail as electronic data deliverables in spreadsheet form. Laboratory data reports will contain final results for blanks and recoveries, methods of analysis, detection limits, quantification levels, accuracy and precision data, MS/MSD data, laboratory method and equipment blank data, and limits of instrument calibration. In addition, special analytical problems or modifications of specified methods will be noted. The number of significant figures reported will be consistent with the limits of uncertainty inherent in the analytical method. Consequently, most analytical results will contain no more than two significant figures. Concentrations in liquids will be expressed in terms of weight per unit volume (e.g., milligrams per liter [mg/L]). Reported detection limits will equal the concentration in the original matrix corresponding to the low-level instrument calibration standard after accounting for concentration, dilution, and/or extraction factors.

9.0 POST-SAMPLING ACTIVITIES

Upon return from sampling, the water quality meters will be post-calibrated within 24 hours, and their data downloaded to the Excel spreadsheet. Post-calibration will indicate if some data may be invalid because of meter drift. Invalid data will be excluded from the database, and a description of the reason for their exclusion will be provided. Photographs taken with the digital camera will be downloaded and labeled. Coordinates for sample points and routes will be downloaded from the GPS and placed into a Geographic Information System database.

Data on paper forms or in field computers will be entered in the Excel spreadsheet. Data management steps described in Section 7.5 will be followed to ensure final data meet data quality objectives.

Field equipment will be cleaned, post-calibrated, and repaired as necessary. Inventory of supplies and equipment will identify materials that need to be obtained prior to the next sample event. Field staff will review the sampling event and procedures and identify modifications that need to be made to the protocols for future sampling.

Voucher specimens will be preserved and labeled. If dead mussel shells have been collected, they will be identified to species.

10.0 DATA ANALYSIS AND INTERPRETATION

Metrics for fish and benthic macroinvertebrate communities will be calculated according to TCEQ (2014) protocols and compared to those illustrated in "Table B-5 Ecoregions 27, 29, and 32 Metrics" for fish and "Table B-11 Metrics and Scoring Criteria for Kick Samples" for benthic macroinvertebrates. This comparison will help identify any degradation of those communities that has occurred. If more current information is available about fish and benthic macroinvertebrate communities from reference streams in this ecoregion, which is the Texas Blackland Prairies Level IV ecoregion (32a), it will be considered in the comparison. Degradation of biological communities that is indicated by indices of biotic integrity will be evaluated by review of water quality, habitat, flow, land use, weather, and other sources of information as appropriate.

11.0 HEALTH AND SAFETY

11.1 BASIC SAFETY PREPARATION

Basic preparations will be routine before every sampling activity. At a minimum, a trip plan will be completed for each field trip and left at a designated location in the FNI office. The trip plan will include the following information:

- Field trip participants;
- Departure and estimated return times;
- Contact phone numbers; and,
- Basic itinerary, including where and when sampling will be performed.

Field work must be done in pairs. FSO field staff will consider carrying the following safety equipment during sample collection activities:

- Chest waders/hip boots/rubber knee boots;
- Safety vests and steel-toed shoes;
- Bug repellent;
- First aid kit;
- Cellular phone;
- Hat/sunscreen/sunglasses;
- Drinking water/sports drinks;
- Tool box with basic tools;
- Flashlights with spare batteries;
- Gloves;
- Antibacterial soap or hand cleaner;
- List of emergency phone numbers/office contacts.

The FSO will carry a packet of general safety information in each vehicle that contains the following materials:

- Emergency phone numbers; and,
- Picture identification cards, insurance information, and project identification sheets.
- Locations of emergency facilities (hospitals and police and fire departments)

- Work authorization from the NCTCOG

11.2 HAZARDS

FNI has developed and continually updates job safety instructions for known hazards and activities. FNI will issue instructions to field personnel and provide updated instructions as necessary as part of the health and safety documentation provided to field personnel.

11.2.1 Contaminated Water

Water collected from the stream reaches may be contaminated with pathogens and/or hazardous chemicals. Waterborne, disease-causing organisms (pathogens) are found in nearly all surface water systems. Some pathogens occur naturally while others enter surface water through untreated sewage discharges and bypasses, urban and agricultural runoff, and direct contact. To minimize the exposure to and effects from contaminated water, FSO field staff will maintain drinking water in a separate area from sampling activities. The FSO will carry antibacterial soap or hand cleaner on all field trips.

11.2.2 Heat Emergencies

Hyperthermia is caused by increasing body temperature due to exposure to extreme heat. Heat emergencies can be brought about by a combination of factors: physical exertion, clothing (waders), humidity, no breeze, air temperature, and the rate of fluid intake. Working in the extreme summer heat creates a very real threat of suffering from some form of heat-related stress.

Warning Signs: Chilling, headache, unsteadiness, dizziness, nausea, dry skin (either hot and red [heat stroke] or cool and pale [heat exhaustion]), rapid pulse, and muscle pain/spasms.

Treatment: General treatment for heat emergencies is cooling down and drinking plenty of fluids. A common symptom of dehydration is a headache. Heat stroke requires medical attention and is considered to be life threatening.

Prevention: Drink water in moderate amounts on a regular basis; do not wait until you are thirsty. Avoid alcohol, caffeine, and soda—these liquids are not water substitutes. Wear lightweight clothing and a wide-brimmed hat. Schedule activities that require the most exertion during early morning or late afternoon hours. Find some shade and take breaks during the day.

11.2.3 Ozone

FSO staff should be aware of the ozone alert level during summer months. On days with high ozone levels, FSO staff should be mindful not to overly exert themselves during sample collection activities.

11.2.4 Plants and Animals

Insects, reptiles, and certain plants are always potential hazards for field personnel. Tables 11-1 through 11-3 present a summary of general information on the most common plant and animal hazards encountered by field staff.

11.2.5 First-Aid Equipment and Supplies

A first-aid kit will be located within the vehicle located at the project sites during sample collection. The first-aid kit must include at a minimum: snakebite kit, potable distilled water, bandages, scissors or knife, antiseptic, bee sting kit, and allergic reaction to insect bite kit.

Other required procedures to reduce injury include:

- Confined entry will not be conducted.
- Stream reaches must not be entered below the water level during sample collection, during a rainstorm, or when rain is imminent. FSO field staff must be aware of flash flood warnings and remain in contact with FSO office staff.
- Appropriate lighting equipment will be carried to illuminate potential hazards. The stream banks may be muddy and slippery.
- Care must be taken when handling the heavy composite and grab containers.

11.2.6 Selection of Personal Protective Equipment

The selection of the personal protective equipment (PPE) will be done per site/field activity and after a thorough evaluation of the hazards involved at the site during each phase of the operation.

Recommended and required PPE is comprised of the following:

- Latex gloves when handling storm water samples
- Raingear
- Rubber boots
- Safety vest – reflective

- Coveralls or work clothing
- Work gloves

11.3 NEAREST HOSPITAL INFORMATION

Locations and information for the nearest hospitals for the various sampling sites are located in Appendix E of the Regional Storm water Monitoring Program: Monitoring Program and Quality Assurance Project Plan for Wet Weather Equipment Deployment and Sampling Protocol 2011-2016 (NCTCOG, 2012).

11.4 EMERGENCY CONTACT INFORMATION

Emergency contacts are listed below:

FIRE*	911
POLICE*	911
AMBULANCE*	911

* Local area police and fire will respond to a 911 call.

12.0 REFERENCES

Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

Hubbs, C., R. J. Edwards, and G. P. Garrett. 2008. An Annotated Checklist of the Freshwater Fishes of Texas, with Keys to Identification of Species. The Texas Journal of Science 43(4):2–87.

National Research Council (NRC). 2008. Urban Stormwater Management in the United States. The National Research Council. Washington, D.C.

North Central Texas Council of Governments (NCTCOG). 2012. Regional Stormwater Monitoring Program: Monitoring Program and Quality Assurance Project Plan for Wet Weather Equipment Deployment and Sampling Protocol 2011–2016. Prepared by Atkins, December 2011.

Southern California Stormwater Monitoring Coalition. 2016. Annual Report 2014–2015. 36 pp.

Texas Commission on Environmental Quality. 2012. Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods. RG-415. 202 pp.

_____. 2014. Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data. Texas Commission on Environmental Quality RG-416. 253 pp.

_____. 2018a. Texas Surface Water Quality Standards, adopted by the Texas Commission on Environmental Quality February 7, 2018. Chapter 307-Texas Surface Water Quality Standards, Rule Project No. 2016-002-307-OW. 212 pp.

_____. 2018b. Updates to the Procedures for Surface Water Quality Monitoring. Accessed May 23, 2018. https://www.tceq.texas.gov/waterquality/monitoring/swqm_manualupdate.html.

Texas Parks & Wildlife Department (TPWD). 2011a. Endangered and Threatened Invertebrates in Texas and the United States. Accessed February 13, 2012. http://www.tpwd.state.tx.us/huntwild/wild/species/endang/animals/invertebrates/

Thomas, C., T. H. Bonner, and B. G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. River Books Sponsored by The River Systems Institute at Texas State University.

APPENDIX A
Sample Chain-of-Custody

800 106th Street
Arlington, Texas 76011

TTI ENVIRONMENTAL LABORATORIES

CHAIN OF CUSTODY RECORD

Page______of______
Telephone: (817) 861-5322
FAX: (817) 261-1717
www.ttilabs.com

CLIENT NAME: Freese and Nichols, Inc.
CLIENT CONTACT: Aaron Petty
CLIENT ADDRESS: 10431 Morado Circle, Suite 300
PHONE: (512) 617-3124
FAX:
CITY, STATE, ZIP: Austin TX 78759
EMAIL: aaron.petty@freese.com
P.O. NO.:
QUOTE NO.:
PROJECT NO.: 100060260
PROJECT NAME: NCTCOG RSWMP
SAMPLER'S NAME: Aaron Petty

LAB USE

LAB NO.
ON ICE ☐ YES ☐ NO
TEMP.OF COOLERS °C: 3 | 4 | 5 | 6 | >6
CUSTODY SEAL: Cooler ☐ Y ☐ N Samples ☐ Y ☐ N
SEAL INTACT: Cooler ☐ Y ☐ N Samples ☐ Y ☐ N

Sample Collection					No. / Type Containers[2]					TEST PARAMETERS															
Date Ex:mm/dd/yyyy	Time Ex:hh:mm	(C)omp (G)rab	Matrix[1]	Sample Description	VOA	A/G 1 LT.	4 OZ .	P/O	PRES[3]	Phosphorus, in orthophosphate	Nitrogen, in nitrate and nitrite	E. coli									DRY WT.	TRRP	HOLD[4]	TTI Lab ID
		G	W	Rowlett Creek in Garland (below ATSF RR bridge)				2	6															
		G	W	Rowlett Creek at Suncreek Park, Plano				2	6															
		G	W	Delaware Creek at Fritz Park, Irving				2	6															

TURNAROUND TIME:
☑ STANDARD 5 Business Days
☐ 50% RUSH 3 Business Days
☐ 100% RUSH 1Business Day / ASAP*
☐ E.R. 300% RUSH Same Day / ASAP*

1. MATRIX: WW-Wastewater; W-Water; S-Soil; SD-Solid; L-Liquid; A-Airbag; C-Charcoal Tube; SL-Sludge; O-Oil
2.CONTAINERS: VOA-40ml vial; A/G-Amber or Glass 1 Liter; 4 oz-Glass Wide Mouth; P/O-Plastic or Other
3.PRES.: 1-None; 2-1:1HNO$_3$; 3-1:1 HCL; 4-1:1 H$_2$SO$_4$; 5-NaOH; 6-Ice; 7-Other__________
4.HOLD: Lab will hold samples for 30 (thirty) days.

Relinquished by (Signature)	Date	Time	Received By: (Signature)	Date	Time

REMARKS: ☐ TTI Drop Off ☐ TTI Pickup

Please use an MDL of 0.005 mg/l for phosphorus (method 200.7)

Method 300A for nitrogen

Method SM9222D for E. coli

Clients delivery of samples to TTI constitutes acceptance to reimburse TTI as per the terms and conditions listed in the price schedule.

APPENDIX B
YSI 6920 Water Quality Meter

Multiparameter Sondes

9

6920 V2-2 Multi-Parameter Water Quality Sonde

(javascript:void(0))

(/ProductImages/303d90a6-c6be-48b2-bab5-8ba85f73c975/images/YSI-6920-V2-Horizontal.jpg)

(javascript:void(0))

☐ ☐ ☐ ☐ ☐ ☐

6-Series Legacy Sondes

View YSI 6-Series water quality sondes being used in a variety of water environments for long-term underwater monitoring and spot sampling.

Price: Request Pricing

Option: 6920 V2-2 Sonde with temperature/conductivity sensor

SKU: 6920V2-01

Request a Quote (/request-a-quote)

Compact Data Sonde for Unattended Monitoring

The YSI 6920 V2-2 sonde is an economical water quality logging system, ideal for long-term in situ monitoring and profiling. Real-time turbidity monitoring, dissolved oxygen monitoring, algae monitoring, and more.

Instrument only. Cables, probes/sensors, and accessories sold separately.

Overview ⊕

Specifications

The 6920 V2-2 has:

- 2 optical ports
- Conductivity/temperature port
- pH or pH/ORP port
- ISE port

General Sonde Specifications	
Medium	Fresh, sea or polluted water
Temperature - Operating	-5 to +50°C
Temperature - Storage	-10 to +60°C
Communications	RS-232, SDI-12
Software	EcoWatch®
Diameter	2.85 in, 7.24 cm
Length	18 in, 45.7 cm
Weight	4 lbs, 1.8 kg
Power - External	12 V DC
Power - Internal	8 AA-size alkaline batteries
Certifications	CE, EU Battery Compliance, FCC, IP-67, WEEE, and MCERTS; Assembled in the USA

Sensor Specifications	Range	Resolution	Accuracy
ROX™ Optical Dissolved Oxygen• % Saturation	0 to 500%	0.1%	0 to 200%: ±1% of reading or 1% air saturation, whichever is greater; 200 to 500%: ±15% of reading

Sensor Specifications	Range	Resolution	Accuracy
ROX™ Optical Dissolved Oxygen• mg/L	0 to 50 mg/L	0.01 mg/L	0 to 20 mg/L: ± 0.1 mg/L or 1% of reading, whichever is greater; 20 to 50 mg/L: ±15% of reading
Conductivity•• 6560 Sensor‡	0 to 100 mS/cm	0.001 to 0.1 mS/cm (range dependent)	±0.5% of reading + 0.001 mS/cm
Salinity	0 to 70 ppt	0.01 ppt	±1% of reading or 0.1 ppt, whichever is greater
Temperature 6560 Sensor‡	-5 to +50°C	0.01°C	±0.15°C
pH 6561 Sensor‡	0 to 14 units	0.01 unit	±0.2 unit
ORP	-999 to +999 mV	0.1 mV	±20 mV
Depth - Deep	0 to 656 ft, 200 m	0.001 ft, 0.001 m	±1 ft, ±0.3 m
Depth - Medium	0 to 200 ft, 61 m	0.001 ft, 0.001 m	±0.4 ft, ±0.12 m
Depth - Shallow	0 to 30 ft, 9.1 m	0.001 ft, 0.001 m	±0.06 ft, ±0.02 m
Vented Level	0 to 30 ft, 9.1 m	0.001 ft, 0.001 m	±0.01 ft, 0.003 m
Turbidity• 6136 Sensor‡	0 to 1,000 NTU	0.1 NTU	±2% of reading or 0.3 NTU, whichever is greater**
Nitrate / nitrogen•••	0 to 200 mg/L-N	0.001 to 1 mg/L-N (range dependent)	±10% of reading or 2 mg/L, whichever is greater

Sensor Specifications	Range	Resolution	Accuracy
Ammonium / ammonia / nitrogen•••	0 to 200 mg/L-N	0.001 to 1 mg/L-N (range dependent)	±10% of reading or 2 mg/L, whichever is greater
Chloride•••	0 to 1000 mg/L	0.001 to 1 mg/L (range dependent)	±15% of reading or 5 mg/L, whichever is greater
Rhodamine•	0-200 μg/L	0.1 μg/L	±5% reading or 1 μg/L, whichever is greater

Blue-Green Algae Sensor Specifications	Range	Detection Limit	Resolution	Linearity
Blue-Green Algae Phycocyanin•	~0 to 280,000 cells/mL† 0 to 100 RFU	~220 cells/mL§	1 cell/mL 0.1 RFU	R2 > 0.9999**
Blue-Green Algae Phycoerythrin•	~0 to 200,000 cells/mL† 0 to 100 RFU	~450 cells/mL§§	1 cell/mL 0.1 RFU	R2 > 0.9999***
Chlorophyll• 6025 Sensor‡	~0 to 400 μg/L 0 to 100 RFU	~0.1 μg/L§§§	0.1 μg/L Chl 0.1% RFU	R2 > 0.9999****

• Maximum depth rating for optical probes is 200 feet, 61 m. Turbidity, Rhodamine, Blue-Green Algae (PC & PE) and Chlorophyll are available in a Deep Depth option (0 to 200 m). Anti-fouling optical probes have depth rating of 200 m.
•• Report outputs of specific conductance (conductivity corrected to 25° C), resistivity, and total dissolved solids are also provided. These values are automatically calculated from conductivity according to algorithms found in Standard Methods for the Examination of Water and Wastewater (ed 1989).
••• Freshwater only. Maximum depth rating of 50 feet, 15.2 m. 600 V2-2 has 3 ISE ports; not available on the 6600V2-4.

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*In YSI AMCO-AEPA Polymer Standards.
**For serial dilution of Rhodamine WT (0-400 ug/L).
***For serial dilution of Rhodamine WT (0-8 μg/L).
****For serial dilution of Rhodamine WT (0-500 ug/L).

RFU = Relative Fluorescence Units
† Explanation of Ranges can be found in the ‘Principles of Operation’ section of the 6-Series Manual, Rev D.
‡ Sensors with listed with ETV logo were submitted to the U.S. EPA ETV program on the YSI 6600EDS. Information on performance characteristics of YSI water quality sensors can be found at www.epa.gov/etv (http://www.epa.gov/etv), or call YSI at 800.897.4151 (#) 800.897.4151 (#) for the ETV verification report. Use of ETV name or logo does not imply approval or certification of this product nor does it make any explicit or implied warranties or guarantees as to product performance.

§ Estimated from cultures of Microcystis aeruginosa.
§§ Estimated from cultures Synechococcus sp.
§§§ Determined from cultures of Isochrysis sp. and chlorophyll a concentration determined via extractions.

Specifications indicate typical performance and are subject to change.

Accessories ⊕

Reviews ⊕

Application Notes ⊕

Brochures and Catalogs ⊖

- 6-Series Multiparameter Water Quality Sondes | E23-10 (/File Library/Documents/Brochures and Catalogs/E23-6-Series-Multiparameter-Water-Quality-Sondes.pdf)
- Françias - Sondes Multiparametres Serie-6 Surveillance des eaux | E23-06-French (/File Library/Documents/Brochures and Catalogs/E23F-Francais-sondes-multiparametres-serie-6-surveillance-des-eaux.pdf)
- Deutsch - 6-Serie Multiparameter Wasserqualitats Messsonden (/File Library/Documents/Brochures and Catalogs/E23G-Deutsch-6-Serie-Multiparameter-Wasserqualitats-Messsonden.pdf)
- Japanese - 6-Series Multiparameter Water Quality Sondes | E23-10-Japanese (/File Library/Documents/Brochures and Catalogs/E23J-Japanese-6Series-Multiparameter-Water-Quality-Sondes.pdf)
- Water Monitoring Solutions | E58-07 (/File Library/Documents/Brochures and Catalogs/E58-Water-Monitoring-Solutions.pdf)
- 6-Series Anti Fouling Kits | E60-07 (/File Library/Documents/Brochures and Catalogs/E60-6-Series-Anti-Fouling-Kits.pdf)

- Source Water Monitoring Applications Capabilities and Solutions | E74-01 (/File Library/Documents/Brochures and Catalogs/E74-Source-Water-Monitoring-Applications-Capabilities-and-Solutions.pdf)
- YSI Vertical Profiler Brochure | E78-03 (/File Library/Documents/Brochures and Catalogs/E78-YSI-Vertical-Profiler-Brochure.pdf)
- HydroMet Water and Weather Monitoring Solutions Brochure | D86-02 (/File Library/Documents/Brochures and Catalogs/HydroMet-Monitoring-Brochure-D86-02-0516-.pdf)
- Surface Water Capabilities Brochure (/File Library/Documents/Brochures and Catalogs/Surface-Water-Capabilities-Brochure-E103-0416.pdf)
- Wastewater Catalog | W35 (/File Library/Documents/Brochures and Catalogs/W35-03-Wastewater-Catalog.pdf)
- Wastewater Water Quality Capabilities and Solutions | W35-03 (/File Library/Documents/Brochures and Catalogs/W35-Wastewater-Water-quality-capabilities-and-solutions.pdf)
- Groundwater Applications and Capabilities | W38-01 (/File Library/Documents/Brochures and Catalogs/W38-Groundwater-Applications-and-Capabilities.pdf)

FAQs ⊕

Guides ⊕

Infographics ⊕

Manuals ⊕

News Briefs ⊕

Specification Sheets ⊕

Technical Notes ⊕

Tips ⊕

You may also need

(/Accessory/id-606930/Carrying-Case-Large-Hard-sided)

(/Accessory/id-6155/6155-Optical-DO-Membrane-Kit)

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APPENDIX C
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Overview Specifications

Technical Specifications

Velocity Range:	±0.001 to 4.0 m/s (0.003 to 13 ft/s)
Velocity Resolution:	0.0001 m/s (0.0003 ft/s)
Velocity Accuracy:	±1% of measured velocity, ±0.25 cm/s
Sample Volume Location:	10 cm from center transducer

Communication Protocol:	RS-232
Power Supply:	8 AA Alkaline batteries (25+ hours of continuous operation)
Weight:	4 lbs
Probe Width:	5.1\"
LCD/Keypad Unit:	Temporarily submersible to 1 m (3 ft)
Operating/Storage Temperature:	-20º to 50ºC

CONTACT

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APPENDIX D
Smith-Root LR-24 Electrofisher

LR-24 Electrofisher

The World's Most Advanced and Safest Electrofisher

You, a Fisheries Biologist, called for a lightweight backpack electrofisher with precise digital controls, “quick setup” options, and the ability to store and recall electrical settings. “Time in the field is valuable,” said fisheries scientists, “and we want to efficiently capture fish while maintaining a safe work environment.”

By engaging with fisheries scientists in the development process, Smith-Root engineers transformed the backpack electrofishing world when creating Smith-Root’s LR-24 Backpack Electrofisher. Among many innovations, the LR-24 introduced digital controls, “quick setup” options, 10 programmable/recallable settings, electrical output monitoring, overload warning, customized shoulder harness, 400 Watt electrical output, and state of the art safety features.

Features

Quick Setup

Quick Setup will select a voltage level necessary to achieve 25 watts average power output through the water between electrodes. This setup uses a default setting of a pulsed DC waveform with a frequency of 30 Hz and a 12% duty cycle (equivalent to a 4ms pulse width). All settings can be adjusted up or down from this starting point to achieve levels necessary for fish capture. This is very useful when electrofishing in a new area and you're not sure what settings to use.

Dual Output

This feature allows the operator to set up two completely independent sets of waveforms and voltages and toggle between them simply by releasing and pressing the anode pole switch in less than one second. This can be very useful if working in waters with multiple age classes, or multiple species where the optimal settings may be quite different.

Safety Features

Emergency stop switch, twin audible alarms, tilt and immersion sensors and Anode-Out-of-Water sensor, combined with the ETL safety certification make the LR-24 the safest backpack electrofisher available. With the **ETL Listed Mark** on the LR-24 Backpack Electrofisher, researchers can be confident that they are using the safest backpack electrofisher in the world.

Power Limit Key and Power Limit Mode

The Power Limit Key allows the user to limit the maximum average output power. It is defaulted to 400 watts, which is the maximum average power output that the LR-24 is capable of producing. It can be easily changed to a lower limit, which can be useful if a study requires staying within a certain power level. The user can decide whether the frequency or the voltage will be automatically decreased in order not to exceed the output power at that limit.

Precise control over output settings

Voltage can be adjusted in 5 volt increments, frequency in 1 Hertz increments, and duty cycle (pulse width) in 1% increments. This is very desirable given study results which indicate that fish injury rates decrease corresponding to decreases in all of these settings. Exact control of the settings allows for much greater control of the output waveforms.

Numerous waveform choices

The LR-24 can produce straight DC, pulsed DC, and Burst of Pulses (previously known as CPS waveform).

Rugged Construction

Roto-molded packframe and molded control box housing offer tough structural support in a light-weight package. The removable battery cover protects all cable connections from environmental conditions and wear and tear.

Storage locations for up to 10 user selected settings

There are 10 storage locations available to either pre-program desirable settings or to store settings currently in use. These storage locations are filled with Factory Default Stored Waveforms, but can be replaced one by one with settings the user prefers. These can be pre-programmed before going in the field or saved and stored while in the field. This can be very useful if a setting has been found to be very effective with a particular species, or it can be of use if a project supervisor wants to standardize sampling and provide settings for crews to use in the field. Factory default stored waveforms can be restored if desired.

Suspension System

The easy-to-fit Cordura suspension harness allows for quick adjustment, making multi-user operations fast, simple and convenient.

SAFETY FIRST

The LR-24 Electrofisher is the first and only electrofisher independently tested and certified to meet published safety standards.

Technical Specifications

Output Power	400W continuous, 39,600W peak
Output Voltage	50 to 990V in 5V steps
Output Frequency	0 to 120Hz in 5Hz steps, Gated burst up to 1000Hz
Duty Cycle	0% to 99% in 1% steps
Output Current	40A peak max, 4A continuous at 100V

Specifications subject to change without notice.

Output Waveforms	Smooth DC, Pulsed DC, Burst of Pulses DC
Waveform Storage	Save voltage, frequency, duty cycle and pulse type for 10 different waveforms
Operational Duty Cycle	40% Max. (192 seconds on 288 seconds off) at 40° C ambient 400VA output
Overload Protection	Excessive peak current, average current or over-temperature will shutdown the unit before damage can occur. Resets automatically when condition is corrected
Output Indicator	Audio tone for 30VDC and greater and increasing pulse rate for output power, Flashing red light, Status display for output voltage both average and peak, output current both average and peak and output power
Metering	Peak and average output current, Peak and average output voltage, Peak and average output power, Battery voltage, Battery current, Battery fuel gauge, Timer, Waveform settings, Error messages, Fault conditions
Output On Timer	0 to 999,999 seconds, resettable via menu
Environmental Requirements	Operational altitude: -400 to 3000 meters Relative humidity: 10% to 90% noncondensing Operating temperature: 0° to 40° C Storage temperature: -15° to 50° C
Construction	Sealed molded polyethylene and ABS case NEMA 4, IP 65
Safety Devices	Output indicator Tilt switch: Forward 50°, backward 40°, sideways 45° all ± 10° Immersion sensor Electrode out of water sensor Electode pole switch Emergency stop switch Battery compartment interlock Battery fuseable link
Electrodes	6 ft. 2-piece pole, 6 ft. 1-piece pole; 6 in., 11 in., 18 in. aluminum ring, 11 in. stainless steel ring; stainless steel trailing cathode
Battery	Choice of 24V batteries
Battery Life	40 minutes continuous at 100W with 7Ah battery

Specifications subject to change without notice.

Size and Weight	Height: 27.5 in (69.9 cm) Width: 14.5 in (36.9 cm) Depth: 14.5 in (36.9 cm) Weight: 20.35 lb. (9.23 kg) without battery or accessories
Certifications	UL STD 61010A-1 CAN/CSA C22.2 STD NO. 1010.1

Specifications subject to change without notice.

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Since 1964, Smith-Root has proudly partnered with fisheries scientists to develop solutions for the fisheries conservation community.

Appendix D:

2020 Stream Bioassessment: Rowlett Creek, City of Garland, Rowlett Creek Headwaters, City of Plano, and Delaware Creek, City of Irving

Job No. ATK18674

2020 STREAM BIOASSESSMENT: ROWLETT CREEK, CITY OF GARLAND, ROWLETT CREEK-BROWN BRANCH, CITY OF PLANO, AND ESTELLE CREEK, CITY OF IRVING

Prepared for:

North Central Texas Council of Governments
616 Six Flags Drive
P.O. Box 5888
Arlington, Texas 76005-5888

Prepared by:

ATKINS
17304 PRESTON ROAD, SUITE 1300
DALLAS, TEXAS 75252

AND

FREESE AND NICHOLS, INC.
10431 MORADO CIRCLE, SUITE 300
AUSTIN, TEXAS 78759

February 2021

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ACRONYMS AND ABBREVIATIONS

ALU	Aquatic Life Use
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
FNI	Freese and Nichols, Inc.
IBI	Index of Biotic Integrity
mg/L	milligrams per liter
mL	milliliter(s)
NCTCOG	North Central Texas Council of Governments
NTMWD	North Texas Municipal Water District
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks & Wildlife Department
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Atkins, under contract to the North Central Texas Council of Governments (NCTCOG) subcontracted with Freese and Nichols, Inc. (FNI) to conduct stream rapid bioassessments on Rowlett Creek in Garland, Texas, Rowlett Creek - Brown Branch in Plano, Texas, and Estelle Creek in Irving, Texas, in 2020. Each creek was sampled at the same location during the months of June and September. Habitat and benthic macroinvertebrate and fish communities were sampled and data compared to metrics from the Texas Commission on Environmental Quality Surface Water Quality Monitoring Procedures (TCEQ, 2014). Water chemistry and flow were also measured concurrently with each trip.

All streams are located in the Texas Blackland Prairie ecoregion (Ecoregion 32) (Griffith et al., 2004). Within an ecoregion, soils, climate, landform, and vegetation are expected to be relatively similar. Reference conditions for benthic macroinvertebrates and fish inhabiting wadeable streams in the Texas Blackland Prairie ecoregion are described by the TCEQ (2012). Evaluating benthic macroinvertebrates and fish communities with aquatic life use metrics in TCEQ (2014) may indicate whether the streams have been impacted by human activities.

This report summarizes sampling methods, data collected, and tentative bioassessment results (Table 1). The same study reaches of all three streams will be sampled in 2021 after which more definitive judgments may be made regarding their ecological health, possible impacts, and appropriate aquatic life use designations. Aquatic life use designations help the TCEQ determine the desired uses and water quality criteria appropriate for streams, and the designations will reflect the impact that impairments such as pollutants, landscape stressors, and habitat alteration can have on stream integrity.

Table 1. Tentative Aquatic Life Designations for Fish, Benthic Macroinvertebrates, and Habitat in Rowlett, Rowlett - Brown Branch, and Estelle Creeks for 2020

	Rowlett Creek		Rowlett Creek Brown Branch		Estelle Creek	
	June	Sept	June	Sept.	June	Sept.
Habitat Quality Index	High	High	High	High	Intermediate	Intermediate
Fish IBI	High	High	High	Intermediate	Intermediate	Limited
Benthic Macroinvertebrate IBI	Intermediate	Intermediate	High	High	Limited	Limited

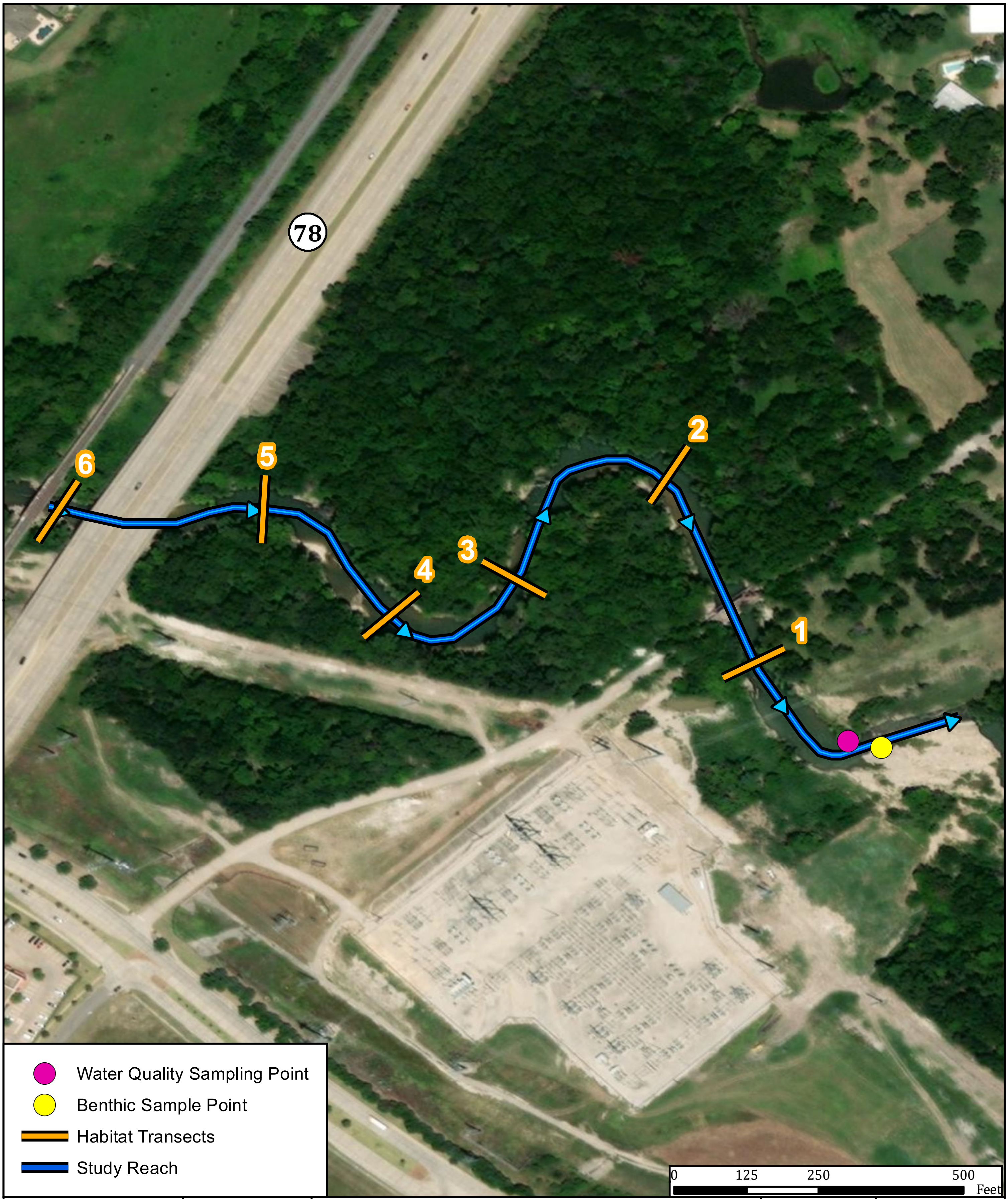
2.0 SITE DESCRIPTIONS

Rowlett Creek (GARBA20201) was sampled downstream of State Highway 78 in the City of Garland, Dallas County, Texas (Figures 1 and 2). Rowlett Creek extends 25 stream miles upstream of the study reach into the City of McKinney, Collin County, Texas.

**Figure 1: Rowlett Creek (GARBA20201) on September 24, 2020.
View towards upstream. Photograph taken by Tam Tran (FNI)**

Pittman and Spring creeks in Plano, Cottonwood Creek in Allen, and Russell and West Rowlett creeks in Frisco form the 77,000-acre Rowlett Creek watershed upstream of the Garland study reach. Treated wastewater from the North Texas Municipal Water District's (NTMWD) Rowlett Creek Wastewater Treatment Plant (Texas Pollutant Discharge Elimination System water quality permit number WQ0010363001) is the only permitted wastewater discharge in the watershed. This discharge enters Rowlett Creek about 8.2 miles upstream of the study reach. The wastewater permit for this facility allows a daily average discharge of 24 million gallons per day. There are no dams on Rowlett Creek upstream of the study reach.

Except for riparian zones along creeks and parks, the watershed is rapidly developing with more than half the watershed covered with residential and commercial development. The 1,640-foot-long study reach



FNI PROJECT NUMBER
ATK18309

DATE CREATED
Date: 2/10/2021

DATUM & COORDINATE SYSTEM
NAD83 State Plane (Feet) Texas Central

FILE NAME
Name: Fig2_Rowlett Creek in Garland

PREPARED BY
KLC

FREESE AND NICHOLS

FREESE AND NICHOLS, INC.
10431 MORADO CIRCLE
SUITE 300
AUSTIN, TEXAS 78759
PHONE: 512-617-3100
FAX: 512-617-3101

North Central Texas Council of Governments
2018-2021 Bioassessments

ROWLETT CREEK (GARBA20201) DOWNSTREAM OF KANSAS SO. RAILROAD IN GARLAND

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FIGURE 2

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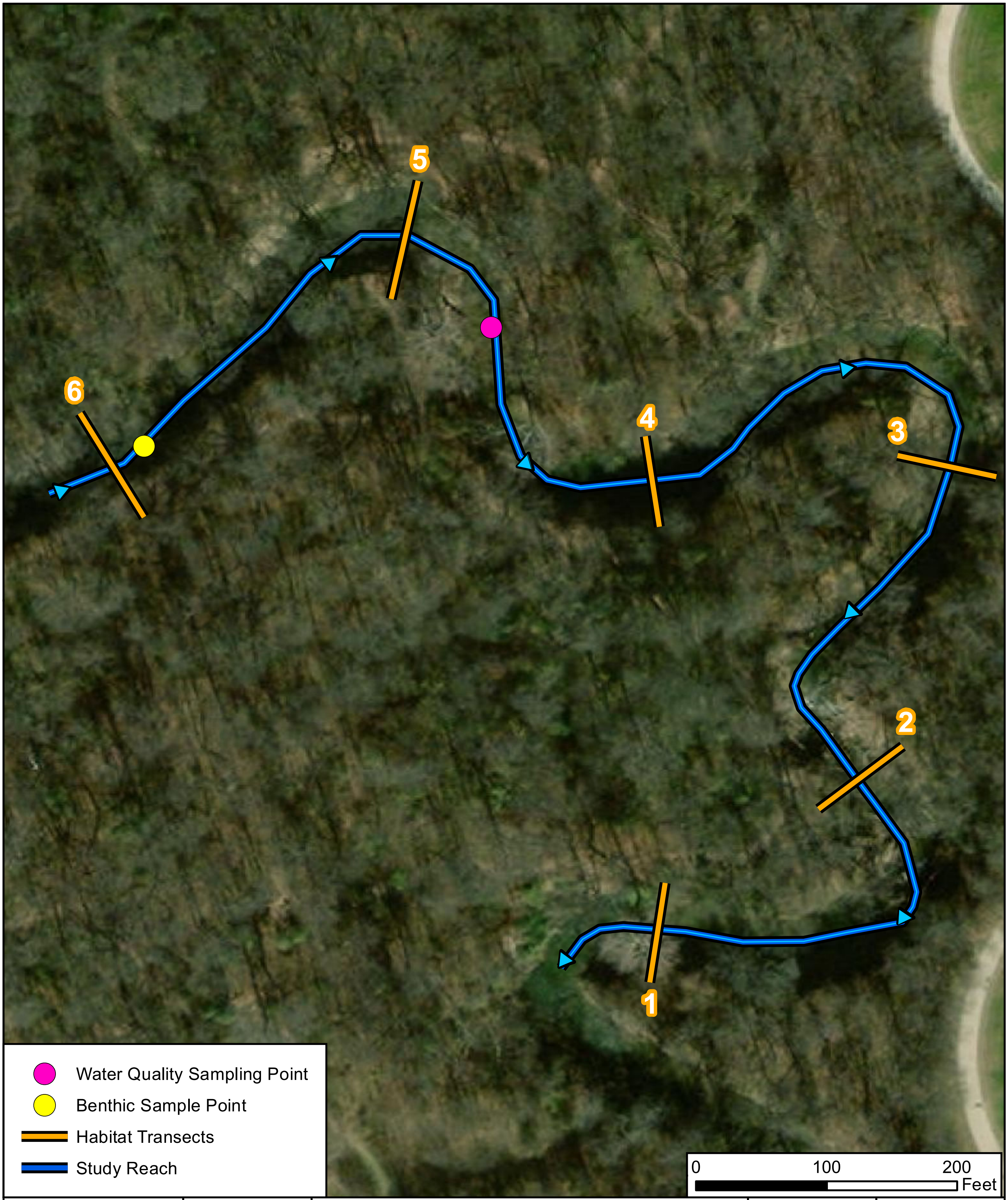
Path: H:\ENVIRONMENTAL\Final_Exhibits\2021-21 Report Figures\Fig2_Rowlett Creek in Garland.mxd captures drainage from most of the Rowlett Creek watershed upstream of Garland. The upstream end of the study reach starts at the downstream edge of the Kansas Southern Railroad bridge, about 180 feet downstream of the confluence with Spring Creek. The study reach extends under the State Highway 78 bridge, then under the Ben Davis Road bridge, which is closed to traffic, under two electric transmission lines, and ends downstream of a concrete pad extending from the south (right) bank into the creek. Much of the riparian zone along this reach is forested. Within the study reach the riparian buffer on the north side of Rowlett Creek is over 400 feet wide in places and wooded riparian vegetation extends along about 76% of the shore. Along the south shore, the riparian zone is up to 300 feet wide in places and extends along about 69% of the shore.

Rowlett Creek - Brown Branch (PLABA20201) was sampled downstream of Jupiter Road in Oak Point Park and Nature Preserve in the City of Plano, Collin County, Texas (Figures 3 and 4). The creek extends 2.7 stream miles upstream to Watters Branch and 3.1 stream miles to Russell Creek. The stream assessment reach is approximately 6 stream miles downstream of the confluence of West Rowlett Creek and Rowlett Creek. West Rowlett Creek extends an additional 6.8 miles upstream, and Rowlett Creek extends an additional 7 miles upstream from the confluence. No dams impound either creek upstream of the study reach.

Figure 3: Rowlett Creek - Brown Branch (PLABA20201) on September 23, 2020. View towards downstream. Photograph taken by Tam Tran (FNI).

At the upstream end of the watershed, the creek maintains a natural streambed and traverses through primarily residential areas and golf courses. Rowlett Creek's watershed upstream of the study reach covers approximately 27,500 acres. There are no permitted wastewater discharges upstream of the study reach. The 1,420-foot-long study reach is buffered on the left and right banks by Oak Point Park and Nature Preserve. The park is a mowed and maintained grassy area with paved walking paths and dirt trails for hiking near and within the forested riparian areas. The riparian zone is relatively wide, with a minimum buffer of 70 feet, and a maximum buffer of 3,700 feet within the study reach.



FNI PROJECT NUMBER	ATK18309
DATE CREATED	Date: 2/10/2021
DATUM & COORDINATE SYSTEM	NAD83 State Plane (Feet) Texas Central
FILE NAME	Name: Fig4_Rowlett Creek at Brown Branc
PREPARED BY	KLC

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ROWLETT CREEK (PLABA20201) AT BROWN BRANCH IN PLANO

FIGURE
4

Estelle Creek (IRVBA20201) was sampled downstream of West Pioneer Drive located in the City of Irving, Dallas County, Texas (figures 5 and 6). The creek extends 3.9 stream miles upstream of the study reach to north Irving, just east of the Dallas-Fort Worth International Airport. Throughout most of the watershed, the creek is confined to a concrete channel extending more than 3 miles and passes through an airport, and residential and commercial areas.

Figure 5: Estelle Creek (IRVBA20201) on September 25, 2020.
View towards upstream. Photo taken by Tam Tran (FNI)

The Estelle Creek watershed upstream of the study reach covers approximately 2,100 acres. Estelle Creek is a highly altered watercourse with two low-head dams within the study reach that form impoundments. The creek is substantially modified between transects 2 to 5 of the study reach and includes an electrical transmission line that crosses the stream at transect 3. An approximate 260-foot stretch between transects 1 and 2 is the only unaltered stream section until the confluence with Bear Creek. Along the 980-foot-long study reach there is a limited riparian buffer on both sides of the stream, with the largest buffer along the right bank between transects 1 and 2 and which is shared with Bear Creek. Residential areas and commercial properties are extensive near the study reach and surround the greater study reach area.

FNI PROJECT NUMBER	ATK18309
DATE CREATED	Date: 2/12/2021
DATUM & COORDINATE SYSTEM	NAD83 State Plane (Feet) Texas Central
FILE NAME	Name: Fig6_Estelle Creek
PREPARED BY	KLC

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ESTELLE CREEK (IRVBA20201) NEAR W. PIONEER DR. IN IRVING

N
W E
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FIGURE 6

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3.0 METHODS

Methods described here were used for each sample event at each study reach. Rowlett Creek, Rowlett Creek - Brown Branch, and Estelle Creek were sampled once between June 17 and 19, 2020, during the "Non-Critical" period and another time between September 23 and 25, 2020, during the "Critical" period. The TCEQ (2012) recommends one sample be collected during the Non-Critical period and one during the Critical Period when two samples are collected at the same site during the same year. The TCEQ (2012) also recommends samples be collected at least 1 month apart, when flows are relatively low, and not recently impacted by rainfall runoff. In order to determine if flow conditions were suitable for sampling, flows at the U.S. Geological Survey (USGS) gauges on Rowlett Creek (Station 08061640) and Bear Creek (Station 0804956950) were observed for 2 weeks prior to each sample event. The Rowlett Creek gage was selected, because it is at the upstream end of the Rowlett Creek study reach and downstream of the Rowlett Creek - Brown Branch study reach. The Bear Creek gage was selected because it is the closest relevant location to Estelle Creek and is also on a tributary to the West Fork Trinity River. Sampling methods followed the TCEQ's surface water quality monitoring procedures (TCEQ, 2012, 2014) and were also described in the "Regional Stormwater Monitoring Plan: Bioassessment Monitoring Plan 2018–2021" (FNI, 2018).

The Non-Critical period (March 15–June 30 and October 1-15) represents the relatively warm period of the year when reproduction, growth, and migration of fish and other aquatic organisms typically occurs. The Critical Period (July–September) usually experiences lowest flows, highest water temperatures, and extended hours of sunlight. These conditions may contribute to dissolved oxygen levels that become critically low for aquatic life. The ability of the waterbody to contain dissolved oxygen decreases as temperature increases. If aquatic plants are abundant in the summer, dissolved oxygen can decline to critical levels in the early morning. These early morning declines in oxygen result from lack of photosynthetic oxygen production during the night combined with relatively high rates of oxygen consumption by aquatic plants and animals in the warm stream.

FNI fisheries biologist, Aaron Petty and biologist Tam Tran, conducted both sample events at each stream. No city or NCTCOG staff participated in the sampling events due to limited staff availability and to COVID-19 precautions.

3.1 HABITAT

Study reaches for each stream were calculated based on the average width measurements taken during initial site reconnaissance. Forty times the average wetted width of each stream (in meters) determined the length of stream reach evaluated. Habitat was assessed at six transects in Garland and Plano, and five transects in Irving. The transects were evenly spaced along each stream reach during the June sample event and marked with flagging for subsequent sampling trips. Photographs were taken of the upstream and downstream reaches and of each bank at each transect. During both the June and September sample events, a tape measure was used to measure stream widths at each transect and photographs were taken. Habitat characteristics measured during the June sample event were reviewed in September, and the FNI team determined the habitats in September were similar to the June habitat measurements in all streams. Stream flow were measured using a Sontek Flowtracker2®. Study reaches included riffles, pools, glides, and runs.

3.2 WATER QUALITY

Grab samples for laboratory analysis of water quality were taken in representative portions of each creek at a depth of 1 foot, immediately preserved on ice, and delivered to the laboratory within 3 hours of collection. Water samples were analyzed by Pace Analytical Laboratory in Fort Worth for *E. coli* bacteria, and at the Allen laboratory for nitrate-nitrogen and dissolved phosphate-phosphorus.

A HydroTech OEM Hydrolab® Compact DS water quality meter measured dissolved oxygen (DO), specific conductance, temperature, and pH when water samples were collected for laboratory analysis at the water quality sampling point. A YSI 6920 V2 equipped with an optical dissolved oxygen probe and a turbidity probe measured DO, turbidity, specific conductance, temperature, and pH every 15 minutes over a diurnal period during each sample event.

3.3 FISH

Fish were collected along the length of the study reach using two methods:

- Electrofishing with a variable-voltage Midwest Lake Electrofishing Infinity XStream model battery-powered backpack unit fished for at least 15 minutes in the creeks. One person operated the backpack unit with the anode rod in one hand and collected fish with the other. A second person collected fish with a long-handled dip net and carried a bucket containing captured fish.

- Seining with a 20-x-6-foot x ⅛-inch mesh seine and a 30-x-6-foot x ¼-inch mesh seine for a minimum of six seine hauls.

All wadeable habitat types were sampled. Deep pools over 4.5 feet deep were not sampled due to constraints using the seine and backpack shocker in deep water. Fish were identified to species, counted, and observed for external deformities. Representative species from each creek were preserved in 10% buffered formalin and retained as voucher specimens if they were new species to the project. Voucher photographs were collected of fish longer than 10 inches total length, if necessary.

3.4 BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrates were collected with 5-minute kick-net samples in riffles with a triangle frame dip net equipped with 0.5-millimeter mesh. Samples were collected in riffles consisting of a variety of cobblestones, boulders, concrete riprap, coarse sand, and bedrock. The same riffles were sampled in both sample events. Organisms were preserved in the field with 95% ethanol and sent to Jack Davis for analysis. After analysis, organisms identified and counted for the benthic macroinvertebrate assessments were preserved as voucher samples.

3.5 MUSSELS

Mussels were sought by visually scanning the stream bottom and shores. The relatively clear shallow water in the Rowlett Creek - Brown Branch and Estelle creeks allowed the bottom to be seen through much of the study reaches. Empty mussel shells of Giant Floater (*Pyganodon grandis*) were observed in Estelle Creek. *Corbicula fluminea*, Asiatic clams, were observed in all three creeks.

4.0 RESULTS AND DISCUSSION

4.1 HABITAT

Habitat quality index scores are one measure of stream composition, and they reflect the impact that impairments such as pollutant discharge, landscape stressors, and riparian zone alterations can have on stream integrity. Although the relationship between human activity from induced chemical contamination, flow modification, or habitat alteration to stream health is complex, the resulting impairments can be quantified through index scores. To detect impacts possibly caused by those stressors, it is important to understand how physical habitat quality may affect biological communities.

Table 2 summarizes habitat quality assessments for Rowlett, Rowlett Brown Branch and Estelle creeks. Table 3 lists data used to derive those assessments. Rowlett Creek had a habitat quality index score of 22, placing it in the high habitat quality category. Rowlett Creek - Brown Branch had a habitat quality index score of 24, also placing it in the high habitat quality category. Estelle Creek had a habitat quality index score of 19, placing it in the intermediate habitat quality category. High habitat quality index scores range from 20–25. Rowlett Creek and Rowlett Creek - Brown Branch had the highest possible scores for pool size, water level, channel sinuosity, and riparian buffer. Estelle Creek is a recently re-constructed stream and had a large amount of stabilizing riprap and poured concrete forming much of the bottom and banks of the stream within the study reach. The riprap provides moderate instream cover and high substrate stability, but the engineered structures affect stream aesthetics. Estelle Creek had the highest possible score for substrate stability and pool size. Rowlett Creek and Rowlett Creek - Brown Branch received the lowest scores for bank stability, based on high bank erosion potential and elevated bank angles. Estelle Creek received the lowest possible score for channel sinuosity and riparian buffer vegetation. Three out of five transects for the stream had no natural riparian buffer, and the stream exhibited only one poorly defined bend.

All stream study reaches exhibited effects of high flow that had moved cobble and boulders in riffles and caused erosion between the June and September sample events. The high flow did not substantially change habitat characteristics measured during the June sample event. Rowlett Creek flow was higher in September than June due to a relatively recent rain event, however the stabilizing influence of the wastewater treatment plant discharge maintains the flow around 50 cubic feet per second (cfs) in the absence of precipitation. Rowlett Creek - Brown Branch and Estelle Creek exhibited higher flows in September than June. The upstream impoundments of the study reach on Estelle Creek also prevent higher continuous flows, with flow measured at less than one cfs for both sampling events.

Table 2. Habitat Quality Index Scores for Rowlett, Rowlett - Brown Branch, and Estelle Creeks on June 18–20, 2020

	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		
Habitat Quality Index	**Measurement Category**	**Habitat Quality Index Score**	**Measurement Category**	**Habitat Quality Index Score**	**Measurement Category**	**Habitat Quality Index Score**	**Maximum Possible Habitat Quality Index Score***
Available Instream Cover	Rare	2	Rare	2	Common	3	4
Bottom Substrate Stability	Moderately Stable	3	Moderately Stable	3	Stable	4	4
Number of Riffles	Common	3	Abundant	4	Rare	2	4
Dimensions of Largest Pool	Large	4	Large	4	Large	4	4
Water Level	High	3	High	3	High	3	3
Bank Stability	Unstable	0	Unstable	0	Moderately Stable	2	3
Channel Sinuosity	High	3	High	3	None	0	3
Riparian Buffer Vegetation	Extensive	3	Extensive	3	Narrow	0	3
Aesthetics of Reach	Common Setting	1	Natural Area	2	Common Setting	1	3
Total Score		**22**		**24**		**19**	**31**
Habitat Quality	*High*		*High*			*Intermediate*	*Exceptional*

*Habitat quality index scores may range from 26–31 exceptional, 20–25 high, 14–19 intermediate, and ≤13 limited.

Table 3. Stream Characteristics for Rowlett, Rowlett - Brown Branch, and Estelle Creeks on June 18–20, 2020, and the Habitat Quality Indices They Support

Habitat Characteristic	Rowlett Creek	Rowlett Creek - Brown Branch	Estelle Creek	Habitat Quality Index Category
Dominant substrate	Gravel, clay, cobble, silt	Gravel, cobble, clay	Riprap, concrete, gravel	Available instream cover
Gravel-sized substrate or larger, average %	47%	50%	68%	Bottom substrate stability
Instream cover, average	23%	10%	34%	Available instream cover
Types of instream cover	Cobble, riprap, woody debris, undercut banks	Cobble, undercut banks, woody debris, leaf litter	Riprap, macrophytes, undercut banks	Available instream cover
Streambank erosion potential, average percent of streambank	50%	66%	32%	Bank stability
Streambank slope, average degrees	44°	37°	34°	Bank stability
Natural buffer vegetation width, average feet	270 ft	913 ft	68 ft	Riparian buffer vegetation
Riparian trees and shrubs, average % cover	60%	90%	15%	Riparian buffer vegetation
Tree canopy coverage, average %	64%	86%	16%	Riparian buffer vegetation
Maximum pool depth (ft)	10.0	3.5	5.1	Dimensions of largest pool
Maximum pool width (ft)	93	30	45	Dimensions of largest pool
Number of riffles	2	5	1	Number of riffles
% of channel bottom covered with water	95%	95%	95%	Channel Flow Status
Number of well-defined bends	2	3	0	Channel sinuosity
Number of moderately-defined bends	1	2	0	Channel sinuosity
Number of poorly-defined bends	0	0	1	Channel sinuosity
Flow (cfs) in Non-Critical Period	45	8	0.2	Channel Flow Status
Flow (cfs) in Critical Period	95	14	0.7	Channel Flow Status
Aesthetics of stream reach	Altered landscape w/ few buildings, native veg.	Nature park setting, few buildings, native veg.	Altered landscape and stream, housing and buildings	Aesthetics of reach

4.2 WATER QUALITY

Table 4 summarizes water quality in Rowlett, Rowlett - Brown Branch and Estelle creeks in June and September 2020. DO, pH, specific conductance, and temperature were within ranges expected to support ecologically healthy streams (TCEQ, 2016).

E. coli levels in both Rowlett Creek and Rowlett Creek - Brown Branch exceeded TCEQ's screening level of 399 colonies/100mL in September. Rowlett Creek also exceeded TCEQ's screening level for nitrate of 1.95 mg/L in both June and September. Dissolved phosphorous levels remained below the screening level in Rowlett Creek and Rowlett Creek - Brown Branch for both sampling trips. *E. coli*, phosphorous, and nitrate levels in Estelle Creek remained below screening levels during both sampling events.

Table 4. Water Quality in Rowlett, Rowlett - Brown Branch, and Estelle Creeks during June and September 2020 Sample Events

Parameter	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Water Quality Criteria (TCEQ, 2018)
	June	Sept.	June	Sept.	June	Sept.	
Field Measurements							
Number of measurements in 24-hour sample	88	81	91	85	77	86	
Dissolved oxygen, (mg/l), 24-hour average (range)	7.3 (6.1–8.8)	7.3 (7.1–8.9)	7.4 (6.4–9.1)	8.0 (7.8–8.5)	7.8 (6.1–9.7)	7.9 (7.0–8.9)	4.0 mg/L (24-hour average for Rowlett Creek), 5.0 mg/L (24-hour average for Estelle Creek)
Dissolved oxygen, % saturation, 24-hour average (range)	92 (76–112)	86 (83–109)	94 (80–118)	91 (89-97)	99 (75–127)	94 (81–108)	
pH (standard units), 24-hour average (range)	7.7 (7.5–8.2)	7.0 (6.5–7.0)	7.8 (7.7–7.9)	7.2 (7.0–7.2)	7.7 (7.2–8.0)	7.1 (6.9–7.4)	
Specific conductance (µS/cm), 24-hour average (range)	722 (713–730)	556 (518–788)	664 (661–668)	413 (388–450)	567 (559–616)	632 (623–696)	
Temperature (°F), 24-hour average (range)	81.4 (78.5–96.8)	71.9 (71.6–76.4)	80.1 (77.4–83.0)	70.0 (69.4–70.7)	81.8 (79.1–86.7)	72.7 (70.1–75.6)	
Turbidity (Nephelometric turbidity units), 24-hour average (range)	8.4 (5.5–12.4)	21.3 (14.2–37.5)	2.5 (0.5–11.7)	8.1 (4.9–15.2)	1.8 (0–4.4)	1.3 (0–5.1)	

Parameter	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Water Quality Criteria (TCEQ, 2018)
	June	Sept.	June	Sept.	June	Sept.	
Lab Measurements							
Escherischia coli bacteria (colonies/ 100 mL)	124	727*	126	1,120*	<55	107	399 colonies/100 mL for a single sample
Phosphorus as Orthophosphate (mg/L)	0.31	0.09	<0.04	<0.04	<0.04	<0.04	0.37 mg/L (screening level)
Nitrate as Nitrogen (mg/L)	9.7*	3.9*	1.1	0.9	<0.05	<0.05	1.95 mg/L (screening level)

mL = milliliter(s); mg/L = milligrams per liter
*Exceedance of TCEQ (2018) Water Quality Criteria

4.3 FISH

Table 5 summarizes fish data collected from Rowlett, Rowlett - Brown Branch, and Estelle creeks during June and September 2020. Table 6 summarizes scores for fish index of biotic integrity metrics from all creeks in June and September 2020. Eleven species of fish were collected from Rowlett Creek in June and thirteen species were collected in September. Both sampling events resulted in high ALU ratings.

Fifteen species of fish were collected in June and ten species were collected in September at the Rowlett Creek - Brown Branch stream reach. Sampling in June resulted in a high ALU rating, and September resulted in an intermediate ALU rating for the fish community. More fish were collected in June, which resulted in higher species diversity for sunfish and fewer tolerant species. With a total score of 40, the September sampling trip was only one point away from a high ALU rating. One non-native fish species, a Common Carp (*Cyprinus carpio*) was collected during the Non-Critical Period in June.

Eight fish species were collected from Estelle Creek in June, and seven were collected in September. Minnow species diversity in the Estelle Creek fish community was poor for both sampling events, primarily due to a lack of available riffle habitat. Red Shiner (*Cyprinella lutrensis*) was the only minnow species collected. The June ALU rating was intermediate and the September rating was limited. The primary metrics that resulted in the score change was an overall reduction in species diversity, an increase in the proportion of pollution tolerant species, higher numbers of omnivores, and lower numbers of insectivores.

Table 5. Fish Collected from Rowlett, Rowlett - Brown Branch and Estelle Creeks in June and September 2020

	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek			Tolerant to Environmental
Species[1]	June	Sept.	June	Sept.	June	Sept.	Feeding Habits	Stress[2]
Bluegill (*Lepomis macrochirus*)	3	6	11	16	3	4	Insects	Tolerant
Longear Sunfish (*Lepomis megalotis*)	56	61	43	30	6	14	Insects	
Green Sunfish (*Lepomis cyanellus*)	7	50	15	18	93	178	Fish	Tolerant
Redear Sunfish (*Lepomis microlophus*)	0	0	1	0	0	0	Insects	
Largemouth Bass (*Micropterus salmoides*)	21	3	4	0	75	4	Fish	
Common Carp (*Cyprinus carpio*)	0	0	1	0	0	0	Plants & animals	Tolerant
Red Shiner (*Cyprinella lutrensis*)	79	68	85	68	8	0	Insects	Tolerant
Central Stoneroller (*Campostoma anomalum*)	24	3	39	14	0	0	Algae	
Plains Killifish (*Fundulus zebrinus*)	0	1	0	0	0	0	Insects	Tolerant
Bullhead Minnow (*Pimephales vigilax*)	11	30	4	8	0	0	Insects	
Mimic Shiner (*Notropis volucellus*)	4	14	5	10	0	0	Plants & animals	Intolerant

Species[1]	Rowlett Creek June	Rowlett Creek Sept.	Rowlett Creek - Brown Branch June	Rowlett Creek - Brown Branch Sept.	Estelle Creek June	Estelle Creek Sept.	Feeding Habits	Tolerant to Environmental Stress[2]
Western Mosquitofish (*Gambusia affinis*)	39	14	4	9	153	61	Insects	Tolerant
Blackstripe Topminnow (*Fundulus notatus*)	10	10	14	11	4	14	Insects	
Yellow Bullhead (*Ameiurus natalis*)	0	1	9	0	12	38	Plants & animals	
Flathead Catfish (*Pylodictus olivaris*)	1	0	1	0	0	0	Fish and animals	
Channel Catfish (*Ictalurus punctatus*)	0	2	3	3	0	0	Plants & animals	Tolerant
Total fish	**255**	**263**	**239**	**187**	**354**	**313**		
Total taxa	11	13	15	10	8	7		

[1] All species are native except for Common Carp which is non-native.

[2] Blanks indicate species with intermediate tolerance of environmental stress.

Table 6. Fish Index of Biotic Integrity Metric Scores for Rowlett, Rowlett - Brown Branch and Estelle Creeks, June and September 2020

Metric	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Maximum Possible Score*
	June	Sept.	June	Sept.	June	Sept.	
Total number of species	3	3	5	3	3	3	5
Number of native minnow species	5	5	5	5	1	1	5
Number of bottom dwelling fish that eat insects	1	1	1	1	1	1	5
Number of sunfish species	3	3	5	3	3	3	5
% of individuals that tolerate environmental stress	3	3	3	1	3	1	5
% of individuals that eat animals and plants	5	5	5	5	5	3	5
% of individuals that eat insects	5	5	5	5	3	1	5
% of individuals that eat fish	5	5	3	5	5	5	5
Number of individuals per sample	3	3	2	2	4	3	5
% of individuals that are non-native species	5	5	5	5	5	5	5
% of individuals with disease or physical anomalies	5	5	5	5	5	5	5
Total score	**43**	**43**	**44**	**40**	**38**	**31**	**55**
Aquatic life use category	*High*	*High*	*High*	*Intermediate*	*Intermediate*	*Limited*	*Exceptional*

*Fish index of biotic integrity scores for the Texas Blackland Prairie ecoregion (Ecoregion 32) range from ≥49 exceptional, 41–48 high, 35–40 intermediate, and <35 limited.

4.4 BENTHIC MACROINVERTEBRATES

Table 7 summarizes benthic macroinvertebrate data collected for Rowlett, Rowlett - Brown Branch and Estelle creeks during June and September 2020. Table 8 summarizes scores for benthic macroinvertebrate index of biotic integrity metrics from all creeks in June and September 2020.

Seventeen benthic macroinvertebrate taxa were collected in Rowlett Creek, with 13 collected in June compared to 10 collected in September. Both sample events scored 25 and earned intermediate ALU ratings.

Seventeen benthic macroinvertebrate taxa were collected in Rowlett Creek - Brown Branch, with 11 collected in June compared to 13 collected in September. Both sample events scored a 29 and earned high ALU ratings.

Eighteen benthic macroinvertebrate taxa were collected in Estelle Creek, with 14 collected in June compared to 8 collected in September. Although there were differences in the number of taxa and total number of organisms between sample dates, both sample events scored limited ALU ratings. The metrics across both sampling events that contributed to low IBI scores were percent dominant taxon, high percentage of tolerant species, and no riffle beetles (Elmidae) were collected during either trip.

Table 7. Benthic Macroinvertebrates Collected from Rowlett, Rowlett - Brown Branch and Estelle Creeks in June and September 2020

Species	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Feeding Habits	Tolerance Value*
	June	Sept.	June	Sept.	June	Sept.		
Leeches (Hirudinea)	4	0	0	0	0	0	Predator	8
Caddisfly (*Cheumatopsyche*)	39	42	41	34	3	98	Filtering collector	6
Caddisfly (*Chimarra*)	7	12	23	26	2	50	Filtering collector	2
Caddisfly (*Hydropsyche*)	0	4	0	0	0	0	Filtering collector	5
Caddisfly (*Oecetis*)	0	0	2	0	0	0	Shredder/ predator	5
Scuds (*Hyallela*)	0	0	0	0	60	0	Collector-gatherer/ shredder	8
Snails (*Physella*)	0	0	0	0	0	2	Scraper	9
Limpets (*Ferrissia*)	0	0	0	0	0	1	Scraper	7
Worms (Oligochaeta)	0	0	0	2	0	0	Collector-gatherer	8
Rove beetle larvae (Staphylinidae)	0	0	0	0	1	0	Predator	
Scavenger beetle larvae (*Berosus*)	0	0	0	0	3	0	Collector-gatherer/predator	9
Snout moth larvae (*Petrophila*)	0	0	0	0	0	4	Scraper	5
Damselfly larvae (*Argia*)	1	0	1	7	1	3	Predator	6
Damselfly larvae *(Enallagma*)	0	0	0	0	3	0	Predator	6
Damselfly larvae (Libellulidae)	0	0	0	0	1	0	Predator	
Dragonfly larvae (*Brechmorhaga*)	0	0	0	3	0	0	Predator	6
Flatworm (*Dugesia*)	14	0	2	0	0	0	Predator	7.5
Midge fly larvae (Chironomidae)	20	26	7	14	13	5	Predator/collector-gatherer/filtering collector	6
Water boatmen (*Trichocorixa*)	0	0	0	0	1	0	Predator/collector-gatherer	

Species	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Feeding Habits	Tolerance Value*
	June	Sept.	June	Sept.	June	Sept.		
Black fly larvae (*Simulium*)	0	6	0	5	0	0	Filtering collector	4
Mayfly larvae (*Baetis*)	8	1	3	0	0	0	Scraper/collector-gatherer	4
Mayfly larvae (*Caenis*)	3	0	1	2	78	0	Scraper/collector-gatherer	7
Mayfly larvae (*Callibaetis*)	1	0	0	0	10	0	Collector-gatherer	4
Mayfly larvae (*Camelobaetidius*)	0	15	2	21	0	0	Scraper/collector-gatherer	4
Mayfly larvae (*Fallceon*)	38	48	71	26	0	17	Scraper/collector-gatherer	4
Mayfly larvae (*Paracloeodes*)	1	0	0	1	0	0	Scraper/collector-gatherer	9
Mayfly larvae (*Procloeon*)	0	0	0	0	1	0	Scraper/collector-gatherer	
Mayfly larvae (*Stenacron*)	0	0	0	0	1	0	Scraper/collector-gatherer	4
Mayfly larvae (*Tricorythodes*)	40	18	0	17	0	0	Collector-gatherer	5
Hellgrammite (*Corydalus*)	0	3	0	3	0	0	Predator	6
Water mite (Hydracarina)	1	0	1	0	0	0	Predator	6
Total benthic macroinvertebrates	**177**	**175**	**154**	**161**	**178**	**180**		
Total taxa	13	10	11	13	14	8		

*Tolerance to environmental stress values range from 0 (least tolerant) to 10 (most tolerant).

Table 8. Benthic Macroinvertebrate Index of Biotic Integrity Metric Scores for Rowlett, Rowlett - Brown Branch and Estelle Creeks for June and September 2020

Metric	Rowlett Creek		Rowlett Creek - Brown Branch		Estelle Creek		Maximum Possible Score*
	June	Sept.	June	Sept.	June	Sept.	
Taxa Richness	2	2	2	2	2	2	4
Mayfly, stonefly, and caddisfly abundance	3	3	3	3	2	1	4
Hilsenhoff Biotic Index (tolerance to environmental stress)	1	2	3	2	1	2	4
% Chironomidae (midge flies) of total numbers	2	2	3	3	3	4	4
% of total numbers made up of dominant taxon	3	3	1	4	1	1	4
% of total numbers made up of dominant functional feeding group	3	3	3	3	2	1	4
% of total numbers that are predators	4	4	4	4	4	1	4
Ratio of number of intolerant to tolerant	1	1	2	1	1	1	4
% of total caddisflies that belong to the family Hydropsychidae	1	1	2	2	2	2	4
Number of non-insect taxa	2	1	2	1	1	2	4
% of total numbers that are collectors-gatherers	2	2	3	3	1	1	4
% of total numbers that are family Elmidae beetles	1	1	1	1	1	1	4
Total score	**25**	**25**	**29**	**29**	**21**	**19**	**48**
Aquatic life use category	*Intermediate*	*Intermediate*	*High*	*High*	*Limited*	*Limited*	*Exceptional*

*Benthic macroinvertebrate index of biotic integrity scores range from >36 exceptional, 29–36 high, 22–28 intermediate, and <22 limited.

5.0 REFERENCES

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Appendix A
Bioassessment Photographs

Appendix A - Photographs

Rowlett Creek in Garland on June 18, 2020. Photo faces upstream from habitat transect 5 toward Highway 78.

Rowlett Creek in Garland on June 18, 2020. Photo faces toward the right bank at transect 5. Photo illustrates severe bank erosion with near vertical banks and a fallen tree.

Appendix A - Photographs

Rowlett Creek in Garland on September 24, 2020. Photo faces upstream from habitat transect 6 under the K.S. Railroad. The confluence between Spring Creek and Rowlett Creek is in the background.

Rowlett Creek in Garland on September 24, 2020. Photo faces upstream from habitat transect 1 and shows the old Ben Davis Road bridge crossing.

Appendix A - Photographs

Rowlett Creek - Brown Branch in Plano on June 16, 2020. Photo faces upstream from the pedestrian bridge downstream of the assessment reach.

Rowlett Creek - Brown Branch in Plano on June 17, 2020. Photo faces upstream and shows a logjam with a riffle near habitat transect 2.

Appendix A - Photographs

Fish collected in Rowlett Creek - Brown Branch in Plano on June 17, 2020. Photo shows the fish species Bluegill, Flathead Catfish, and Longear Sunfish.

Rowlett Creek - Brown Branch in Plano on September 23, 2020. Photo faces upstream from habitat transect 1 and illustrates extensive erosion along the left bank in the background.

Appendix A - Photographs

Estelle Creek in Irving on June 19, 2020. Photo faces upstream from habitat transect 5 and illustrates the engineered portions of the stream with riprap lined banks.

Estelle Creek in Irving on September 25, 2020. Photo faces upstream from habitat transect 3 and illustrates one of the low head dam structures within the assessment reach.

Appendix A - Photographs

Estelle Creek in Irving on September 25, 2020. Photo faces downstream along the electric transmission line from habitat transect 4, illustrating the lack of native riparian buffer.

Estelle Creek in Irving on September 25, 2020. Photo faces downstream from habitat transect 1 at the confluence with Bear Creek.

Appendix E:

Lab Certifications and Accreditations

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Executive Director Texas Commission on Environmental Quality

Certificate Number: T104704232-19-29
Effective Date: 7/25/2019
Expiration Date: 6/30/2020

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-19-29
Expiration Date: 6/30/2020
Issue Date: 7/25/2019

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

		Certificate:	**T104704232-19-29**
Pace Analytical Services, LLC - Dallas, TX		**Expiration Date:**	**6/30/2020**
		Issue Date:	**7/25/2019**

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	**AB**	**Analyte ID**	**Method ID**
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/25/2019

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609

Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419

Certificate: **T104704232-19-29**

Pace Analytical Services, LLC - Dallas, TX
Expiration Date: **6/30/2020**
400 West Bethany Drive, Suite 190
Issue Date: **7/25/2019**
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603
Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603

Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625
Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625

Matrix: ***Non-Potable Water***

gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207

Matrix: ***Non-Potable Water***

2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207

Matrix: ***Non-Potable Water***

Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121
cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Pace Analytical Services, LLC - Dallas, TX	**Certificate:**	**T104704232-19-29**
	Expiration Date:	**6/30/2020**
400 West Bethany Drive, Suite 190 Allen, TX 75013-3714	**Issue Date:**	**7/25/2019**

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Matrix: ***Non-Potable Water***

2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401

Matrix: ***Non-Potable Water***

Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024
1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024
Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024

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Matrix: ***Non-Potable Water***

Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024
Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024

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Matrix: ***Non-Potable Water***

Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606

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Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/25/2019

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Matrix: ***Non-Potable Water***

1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704232-19-29**
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Matrix: ***Non-Potable Water***

Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805

Certificate: **T104704232-19-29**

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805

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Matrix: ***Non-Potable Water***

2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805

Certificate: **T104704232-19-29**

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Matrix: ***Non-Potable Water***

Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805

Matrix: ***Non-Potable Water***

Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Certificate: T104704232-19-29

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Matrix: ***Non-Potable Water***

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	**AB**	**Analyte ID**	**Method ID**
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	TX	1605	20223807

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	20045005

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Matrix: ***Non-Potable Water***

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046008

Method SM 2540 B

Analyte	AB	Analyte ID	Method ID
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	AB	Analyte ID	Method ID
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	AB	Analyte ID	Method ID
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	AB	Analyte ID	Method ID
Iron	TX	1070	20009603

Method SM 4500-CN¯ E

Analyte	AB	Analyte ID	Method ID
Total cyanide	TX	1645	20021209

Method SM 4500-CN¯ G

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	20104603

Method SM 4500-NH3 H

Analyte	AB	Analyte ID	Method ID

Matrix: ***Non-Potable Water***

Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	AB	Analyte ID	Method ID
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	AB	Analyte ID	Method ID
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2¯ D

Analyte	AB	Analyte ID	Method ID
Sulfide	TX	2005	20125400

Method SM 4500-S2¯ F

Analyte	AB	Analyte ID	Method ID
Sulfide	TX	2005	20126209

Method SM 5210 B

Analyte	AB	Analyte ID	Method ID
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	AB	Analyte ID	Method ID
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

Certificate: T104704232-19-29

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Certificate: T104704232-19-29

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Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

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Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-19-29
Expiration Date: 6/30/2020
Issue Date: 7/25/2019

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

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Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

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Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

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in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

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Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	**AB**	**Analyte ID**	**Method ID**
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	**AB**	**Analyte ID**	**Method ID**
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609

Matrix: ***Non-Potable Water***

Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419

Matrix: ***Non-Potable Water***

Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603
Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603

Certificate: T104704232-19-29

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Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625
Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625

Matrix: ***Non-Potable Water***

gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207

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Matrix: ***Non-Potable Water***

2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207

Matrix: ***Non-Potable Water***

Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121
cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401

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Matrix: ***Non-Potable Water***

2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401

Matrix: ***Non-Potable Water***

Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024
1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024

Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024
Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024

Matrix: ***Non-Potable Water***

Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024
Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024

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Matrix: ***Non-Potable Water***

Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606

Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802

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Matrix: ***Non-Potable Water***

Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805

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Matrix: ***Non-Potable Water***

2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805

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Matrix: ***Non-Potable Water***

Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805

Matrix: ***Non-Potable Water***

Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

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Matrix: ***Non-Potable Water***

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	**AB**	**Analyte ID**	**Method ID**
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	TX	1605	20223807

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	20045005

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Matrix: ***Non-Potable Water***

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	TX	1755	20046008

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	**AB**	**Analyte ID**	**Method ID**
Iron	TX	1070	20009603

Method SM 4500-CN^{-} E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN^{-} G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2¯ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2¯ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Non-Potable Water***

Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

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Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/25/2019

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

Certificate: **T104704232-19-29**

Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/25/2019

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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 22, 2020

Ms. Elizabeth Turner
Pace Analytical Services, LLC - Dallas, TX
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Subject: Amendment application

Dear Ms. Turner:

Based on the amendment request submitted on June 25, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on July 01, 2020.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the standards for accreditation and requirements of the state of Texas.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

How is our customer service? tceq.texas.gov/customersurvey

THE STATE OF TEXAS

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704232-20-32
Effective Date: 7/22/2020
Expiration Date: 6/30/2021

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	AB	Analyte ID	Method ID
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	AB	Analyte ID	Method ID
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Certificate: T104704232-20-32

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 360.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	10069008

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609

Matrix: ***Non-Potable Water***

Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419

Matrix: ***Non-Potable Water***

Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603

Matrix: ***Non-Potable Water***

Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625

Matrix: ***Non-Potable Water***

Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625
gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207

Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121

Matrix: ***Non-Potable Water***

cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121
m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401

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Matrix: ***Non-Potable Water***

2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401

Matrix: ***Non-Potable Water***

Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024
1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024
Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024

Matrix: ***Non-Potable Water***

Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024
Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606

Matrix: ***Non-Potable Water***

Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

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Matrix: ***Non-Potable Water***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

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Matrix: ***Non-Potable Water***

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802

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Matrix: ***Non-Potable Water***

Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Method EPA 8270

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805

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Matrix: ***Non-Potable Water***

2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805

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Matrix: ***Non-Potable Water***

Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805

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Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Matrix: ***Non-Potable Water***

Method EPA 9014

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10196802

Method EPA 9050

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	AB	Analyte ID	Method ID
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	AB	Analyte ID	Method ID
Color	TX	1605	20223807

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Matrix: ***Non-Potable Water***

Method SM 2130 B

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	20042200

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045005

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046008

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048004

Method SM 2540 B

Analyte	AB	Analyte ID	Method ID
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	AB	Analyte ID	Method ID
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	AB	Analyte ID	Method ID
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	AB	Analyte ID	Method ID
Iron	TX	1070	20009603

Method SM 4500-Cl G

Analyte	AB	Analyte ID	Method ID

Matrix: ***Non-Potable Water***

Total residual chlorine	TX	1940	20020604

Method SM 4500-CN¯ E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN¯ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20023001

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2¯ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2¯ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 4500-SO3¯ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	TX	2015	20026806

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Matrix: ***Non-Potable Water***

Method SM 5210 B

Analyte	AB	Analyte ID	Method ID
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	AB	Analyte ID	Method ID
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

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NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

Texas Commission on Environmental Quality

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	AB	Analyte ID	Method ID
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	AB	Analyte ID	Method ID
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	AB	Analyte ID	Method ID
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	AB	Analyte ID	Method ID
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

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Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

CERTIFICATIONS

Project:	Wet Weather
Pace Project No.:	75146371

Pace Analytical Services Dallas

Texas Certification T104704232-20-32	Arkansas Certification #: 88-0647
400 West Bethany Dr Suite 190, Allen, TX 75013	Oklahoma Certification #: 8727
Florida Certification #: E871118	Louisiana Certification #: 30686
EPA# TX00074	Iowa Certification #: 408
Kansas Certification #: E-10388	

Pace Analytical Services Fort Worth

Texas Certificatiion T104704232-20-32	EPA# TX00074
2657 Gravel Dr, Fort Worth, Texas 76118	

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Executive Director Texas Commission on Environmental Quality

Certificate Number: T104704232-19-29
Effective Date: 7/25/2019
Expiration Date: 6/30/2020

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-19-29

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

Issue Date: 7/25/2019

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	AB	Analyte ID	Method ID
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	AB	Analyte ID	Method ID
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

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Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609

Certificate: **T104704232-19-29**
Pace Analytical Services, LLC - Dallas, TX
Expiration Date: **6/30/2020**
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714
Issue Date: **7/25/2019**

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Matrix: ***Non-Potable Water***

Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419

Matrix: ***Non-Potable Water***

Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603
Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603

Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625
Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625

Matrix: ***Non-Potable Water***

gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207

Matrix: ***Non-Potable Water***

Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121
cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121

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Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401

Matrix: ***Non-Potable Water***

Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024
1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024
Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024

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Matrix: ***Non-Potable Water***

Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024
Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024

Matrix: ***Non-Potable Water***

Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606

Matrix: ***Non-Potable Water***

Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-19-29**
Expiration Date: **6/30/2020**
Issue Date: **7/25/2019**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802

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Matrix: ***Non-Potable Water***

Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805

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Matrix: ***Non-Potable Water***

2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805

Matrix: ***Non-Potable Water***

Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805

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Matrix: ***Non-Potable Water***

Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

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Matrix: ***Non-Potable Water***

Method EPA 9040

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10196802

Method EPA 9050

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	AB	Analyte ID	Method ID
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	AB	Analyte ID	Method ID
Color	TX	1605	20223807

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045005

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Matrix: ***Non-Potable Water***

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	TX	1755	20046008

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	**AB**	**Analyte ID**	**Method ID**
Iron	TX	1070	20009603

Method SM 4500-CN¯ E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN¯ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Non-Potable Water***

Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2¯ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2¯ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Non-Potable Water***

Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-19-29**

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: **6/30/2020**

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: **7/25/2019**

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

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Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

Certificate: **T104704232-19-29**

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-19-29**

Pace Analytical Services, LLC - Dallas, TX

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Issue Date: **7/25/2019**

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

Certificate: T104704232-19-29
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Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 22, 2020

Ms. Elizabeth Turner
Pace Analytical Services, LLC - Dallas, TX
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Subject: Amendment application

Dear Ms. Turner:

Based on the amendment request submitted on June 25, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on July 01, 2020.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the standards for accreditation and requirements of the state of Texas.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

How is our customer service? tceq.texas.gov/customersurvey

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704232-20-32
Effective Date: 7/22/2020
Expiration Date: 6/30/2021

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	AB	Analyte ID	Method ID
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	AB	Analyte ID	Method ID
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 360.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	10069008

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609

Matrix: ***Non-Potable Water***

Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Issue Date: **7/22/2020**

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Matrix: ***Non-Potable Water***

Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603

Matrix: ***Non-Potable Water***

Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625

Matrix: ***Non-Potable Water***

Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625
gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207

Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121

Matrix: ***Non-Potable Water***

cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121
m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401

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Matrix: ***Non-Potable Water***

2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401

Matrix: ***Non-Potable Water***

Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024
1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024

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Matrix: ***Non-Potable Water***

Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024
Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024

Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024
Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606

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Matrix: ***Non-Potable Water***

Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-20-32**

Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Non-Potable Water***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

Matrix: ***Non-Potable Water***

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802

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Matrix: ***Non-Potable Water***

Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

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Matrix: ***Non-Potable Water***

Method EPA 8270

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805

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Matrix: ***Non-Potable Water***

2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805

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Matrix: ***Non-Potable Water***

Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805

Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

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Matrix: ***Non-Potable Water***

Method EPA 9014

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10196802

Method EPA 9050

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	AB	Analyte ID	Method ID
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	AB	Analyte ID	Method ID
Color	TX	1605	20223807

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Matrix: ***Non-Potable Water***

Method SM 2130 B

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	20042200

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045005

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046008

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048004

Method SM 2540 B

Analyte	AB	Analyte ID	Method ID
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	AB	Analyte ID	Method ID
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	AB	Analyte ID	Method ID
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	AB	Analyte ID	Method ID
Iron	TX	1070	20009603

Method SM 4500-Cl G

Analyte	AB	Analyte ID	Method ID

Matrix: ***Non-Potable Water***

Total residual chlorine	TX	1940	20020604

Method SM 4500-CN^- E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN^- G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20023001

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-$S2^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-$S2^-$ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 4500-$SO3^-$ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	TX	2015	20026806

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Matrix: ***Non-Potable Water***

Method SM 5210 B

Analyte	AB	Analyte ID	Method ID
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	AB	Analyte ID	Method ID
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32
Expiration Date: 6/30/2021
Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

Certificate:	**T104704232-20-32**
Pace Analytical Services, LLC - Dallas, TX	**Expiration Date:**	**6/30/2021**
	Issue Date:	**7/22/2020**

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

Certificate: T104704232-20-32

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2021

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/22/2020

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32
Expiration Date: 6/30/2021
Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 02, 2020

Mr. Danny Chance
Accurate Environmental LLC
505 S Lowry
Stillwater, OK 74074-3625

Subject: Initial accreditation

Dear Mr. Chance:

I am writing to congratulate you and the staff of *Accurate Environmental LLC*. Based on your application and primary NELAP accreditations from the state of Oklahoma, pursuant to authorization from the Executive Director of the Texas Commission on Environmental Quality, the Program Manager of the Quality Assurance Section has issued your laboratory secondary NELAP accreditation according to the attached Fields of Accreditation.

I am enclosing the accreditation certificate and Fields of Accreditation listing. Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the requirements of the state of Texas as well as those of your primary accreditation body.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Accurate Environmental LLC

3910 E 51st Street
Tulsa, OK 74135-3606

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Executive Director Texas Commission on Environmental Quality

Certificate Number: **T104704563-20-1**
Effective Date: **11/2/2020**
Expiration Date: **11/30/2021**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704563-20-1
Expiration Date: 11/30/2021
Issue Date: 11/2/2020

Accurate Environmental LLC

3910 E 51st Street
Tulsa, OK 74135-3606

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	OK	1000	10014605
Antimony	OK	1005	10014605
Arsenic	OK	1010	10014605
Barium	OK	1015	10014605
Beryllium	OK	1020	10014605
Cadmium	OK	1030	10014605
Chromium	OK	1040	10014605
Copper	OK	1055	10014605
Lead	OK	1075	10014605
Manganese	OK	1090	10014605
Mercury	OK	1095	10014605
Nickel	OK	1105	10014605
Selenium	OK	1140	10014605
Silver	OK	1150	10014605
Thallium	OK	1165	10014605
Uranium	OK	3035	10014605
Zinc	OK	1190	10014605

Method EPA 900.0

Analyte	AB	Analyte ID	Method ID
Gross-alpha	OK	2830	10308200
Gross-beta	OK	2840	10308200

Method EPA 903.0

Analyte	AB	Analyte ID	Method ID
Radium-226	OK	2965	10309407

Method EPA 904.0

Analyte	AB	Analyte ID	Method ID
Radium-228	OK	2970	10309805

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 22, 2020

Ms. Elizabeth Turner
Pace Analytical Services, LLC - Dallas, TX
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Subject: Amendment application

Dear Ms. Turner:

Based on the amendment request submitted on June 25, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on July 01, 2020.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the standards for accreditation and requirements of the state of Texas.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Executive Director Texas Commission on Environmental Quality

Certificate Number: T104704232-20-32
Effective Date: 7/22/2020
Expiration Date: 6/30/2021

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32

Expiration Date: 6/30/2021

Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

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Allen, TX 75013-3714

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Certificate: T104704232-20-32

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2021

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/22/2020

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	AB	Analyte ID	Method ID
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	AB	Analyte ID	Method ID
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 360.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	10069008

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609

Matrix: ***Non-Potable Water***

Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419

Matrix: ***Non-Potable Water***

Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603

Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625

Matrix: ***Non-Potable Water***

Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625
gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207

Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121

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Matrix: ***Non-Potable Water***

cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121
m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401

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Matrix: ***Non-Potable Water***

2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401

Matrix: ***Non-Potable Water***

Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024
1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024

Certificate: **T104704232-20-32**

Pace Analytical Services, LLC - Dallas, TX

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400 West Bethany Drive, Suite 190
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Issue Date: **7/22/2020**

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Matrix: ***Non-Potable Water***

Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024
Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024

Matrix: ***Non-Potable Water***

Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024
Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606

Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

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Matrix: ***Non-Potable Water***

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802

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Matrix: ***Non-Potable Water***

Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805

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Matrix: ***Non-Potable Water***

2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805

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Matrix: ***Non-Potable Water***

Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805

Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

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Matrix: ***Non-Potable Water***

Method EPA 9014

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10196802

Method EPA 9050

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	AB	Analyte ID	Method ID
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	AB	Analyte ID	Method ID
Color	TX	1605	20223807

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Matrix: ***Non-Potable Water***

Method SM 2130 B

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	20042200

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045005

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046008

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048004

Method SM 2540 B

Analyte	AB	Analyte ID	Method ID
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	AB	Analyte ID	Method ID
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	AB	Analyte ID	Method ID
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	AB	Analyte ID	Method ID
Iron	TX	1070	20009603

Method SM 4500-Cl G

Analyte	AB	Analyte ID	Method ID

Matrix: ***Non-Potable Water***

Total residual chlorine	TX	1940	20020604

Method SM 4500-CN$^-$ E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN$^-$ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20023001

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2$^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2$^-$ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 4500-SO3$^-$ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	TX	2015	20026806

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32
Expiration Date: 6/30/2021
Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

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Matrix: ***Non-Potable Water***

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Pace Analytical Services, LLC - Dallas, TX

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Allen, TX 75013-3714

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Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

Certificate: **T104704232-20-32**

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Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

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Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

CERTIFICATIONS

Project:	Wet Weather
Pace Project No.:	75146371

Pace Analytical Services Dallas

Texas Certification T104704232-20-32	Arkansas Certification #: 88-0647
400 West Bethany Dr Suite 190, Allen, TX 75013	Oklahoma Certification #: 8727
Florida Certification #: E871118	Louisiana Certification #: 30686
EPA# TX00074	Iowa Certification #: 408
Kansas Certification #: E-10388	

Pace Analytical Services Fort Worth

Texas Certificatiion T104704232-20-32	EPA# TX00074
2657 Gravel Dr, Fort Worth, Texas 76118	

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Protecting Texas by Reducing and Preventing Pollution

November 02, 2020

Mr. Danny Chance
Accurate Environmental LLC
505 S Lowry
Stillwater, OK 74074-3625

Subject: Initial accreditation

Dear Mr. Chance:

I am writing to congratulate you and the staff of *Accurate Environmental LLC*. Based on your application and primary NELAP accreditations from the state of Oklahoma, pursuant to authorization from the Executive Director of the Texas Commission on Environmental Quality, the Program Manager of the Quality Assurance Section has issued your laboratory secondary NELAP accreditation according to the attached Fields of Accreditation.

I am enclosing the accreditation certificate and Fields of Accreditation listing. Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the requirements of the state of Texas as well as those of your primary accreditation body.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Accurate Environmental LLC

3910 E 51st Street
Tulsa, OK 74135-3606

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: **T104704563-20-1**
Effective Date: **11/2/2020**
Expiration Date: **11/30/2021**

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704563-20-1
Expiration Date: 11/30/2021
Issue Date: 11/2/2020

Accurate Environmental LLC

3910 E 51st Street
Tulsa, OK 74135-3606

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	OK	1000	10014605
Antimony	OK	1005	10014605
Arsenic	OK	1010	10014605
Barium	OK	1015	10014605
Beryllium	OK	1020	10014605
Cadmium	OK	1030	10014605
Chromium	OK	1040	10014605
Copper	OK	1055	10014605
Lead	OK	1075	10014605
Manganese	OK	1090	10014605
Mercury	OK	1095	10014605
Nickel	OK	1105	10014605
Selenium	OK	1140	10014605
Silver	OK	1150	10014605
Thallium	OK	1165	10014605
Uranium	OK	3035	10014605
Zinc	OK	1190	10014605

Method EPA 900.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	OK	2830	10308200
Gross-beta	OK	2840	10308200

Method EPA 903.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-226	OK	2965	10309407

Method EPA 904.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-228	OK	2970	10309805

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 22, 2020

Ms. Elizabeth Turner
Pace Analytical Services, LLC - Dallas, TX
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Subject: Amendment application

Dear Ms. Turner:

Based on the amendment request submitted on June 25, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on July 01, 2020.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the standards for accreditation and requirements of the state of Texas.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: **T104704232-20-32**
Effective Date: **7/22/2020**
Expiration Date: **6/30/2021**

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704232-20-32**
Expiration Date:	**6/30/2021**
Issue Date:	**7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	**AB**	**Analyte ID**	**Method ID**
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32
Expiration Date: 6/30/2021
Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 360.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	10069008

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609

Matrix: ***Non-Potable Water***

Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419

Certificate: **T104704232-20-32**
Expiration Date: **6/30/2021**
Issue Date: **7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603

Matrix: ***Non-Potable Water***

Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625

Certificate: T104704232-20-32

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2021

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 7/22/2020

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Matrix: ***Non-Potable Water***

Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625
gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-32
Expiration Date: 6/30/2021
Issue Date: 7/22/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207

Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121

Matrix: ***Non-Potable Water***

cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121
m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401

Certificate: **T104704232-20-32**

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: **6/30/2021**

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: **7/22/2020**

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Matrix: ***Non-Potable Water***

2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401

Matrix: ***Non-Potable Water***

Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024
1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024

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Issue Date: 7/22/2020

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Matrix: ***Non-Potable Water***

Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024
Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024

Matrix: ***Non-Potable Water***

Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024
Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606

Matrix: ***Non-Potable Water***

Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

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Matrix: ***Non-Potable Water***

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802

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Matrix: ***Non-Potable Water***

Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Matrix: ***Non-Potable Water***

Method EPA 8270

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805

Matrix: ***Non-Potable Water***

2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805

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Matrix: ***Non-Potable Water***

Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805

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Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Matrix: ***Non-Potable Water***

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	**AB**	**Analyte ID**	**Method ID**
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	TX	1605	20223807

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Matrix: ***Non-Potable Water***

Method SM 2130 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	TX	2055	20042200

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	20045005

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	TX	1755	20046008

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	20048004

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	**AB**	**Analyte ID**	**Method ID**
Iron	TX	1070	20009603

Method SM 4500-Cl G

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

Total residual chlorine	TX	1940	20020604

Method SM 4500-CN$^-$ E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	20021209

Method SM 4500-CN$^-$ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20023001

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2$^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2$^-$ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 4500-SO3$^-$ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	TX	2015	20026806

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

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Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

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Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

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Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

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Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

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pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704232-20-32**
Expiration Date:	**6/30/2021**
Issue Date:	**7/22/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 15, 2020

Ms. Penny Pryor
Environmental Science Corp. dba: Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road
Mount Juliet, TN 37122-2508

Re: Amendment application

Dear Ms. Pryor:

Based on the amendment request submitted on November 18, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on November 01, 2020.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the requirements of the state of Texas as well as those of your primary accreditation body.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or extension (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

How is our customer service? tceq.texas.gov/customersurvey

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road
Mount Juliet, TN 37122-2508

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704245-20-19
Effective Date: 12/15/2020
Expiration Date: 10/31/2021

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704245-20-19

Expiration Date: 10/31/2021

Issue Date: 12/15/2020

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road
Mount Juliet, TN 37122-2508

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Matrix: ***Air & Emissions***

Method EPA TO-15

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	LA-DEQ	5160	10248803
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10248803
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10248803
1,1,2-Trichloroethane	LA-DEQ	5165	10248803
1,1-Dichloroethane	LA-DEQ	4630	10248803
1,1-Dichloroethylene	LA-DEQ	4640	10248803
1,2,3-Trimethylbenzene	LA-DEQ	5182	10248803
1,2,4-Trichlorobenzene	LA-DEQ	5155	10248803
1,2,4-Trimethylbenzene	LA-DEQ	5210	10248803
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10248803
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	LA-DEQ	4695	10248803
1,2-Dichlorobenzene	LA-DEQ	4610	10248803
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10248803
1,2-Dichloropropane	LA-DEQ	4655	10248803
1,3,5-Trimethylbenzene	LA-DEQ	5215	10248803
1,3-Butadiene	LA-DEQ	9318	10248803
1,3-Dichlorobenzene	LA-DEQ	4615	10248803
1,4-Dichlorobenzene	LA-DEQ	4620	10248803
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10248803
1-Propene (Propylene)	LA-DEQ	4836	10248803
2,2,4-Trimethylpentane (Isooctane)	LA-DEQ	5220	10248803
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10248803
4-Ethyltoluene	LA-DEQ	4542	10248803
Acetaldehyde	LA-DEQ	4300	10248803
Acetonitrile	LA-DEQ	4320	10248803
Acrylonitrile	LA-DEQ	4340	10248803
Benzene	LA-DEQ	4375	10248803
Benzyl chloride	LA-DEQ	5635	10248803

Matrix: ***Air & Emissions***

Bromodichloromethane	LA-DEQ	4395	10248803
Bromoform	LA-DEQ	4400	10248803
Carbon tetrachloride	LA-DEQ	4455	10248803
Chlorobenzene	LA-DEQ	4475	10248803
Chlorodibromomethane	LA-DEQ	4575	10248803
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10248803
Chloroform	LA-DEQ	4505	10248803
cis-1,2-Dichloroethylene	LA-DEQ	4645	10248803
cis-1,3-Dichloropropene	LA-DEQ	4680	10248803
Cyclohexane	LA-DEQ	4555	10248803
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10248803
Ethylbenzene	LA-DEQ	4765	10248803
Hexachlorobutadiene	LA-DEQ	4835	10248803
Isopropylbenzene (Cumene)	LA-DEQ	4900	10248803
m+p-xylene	LA-DEQ	5240	10248803
Methanol	LA-DEQ	4930	10248803
Methyl bromide (Bromomethane)	LA-DEQ	4950	10248803
Methyl chloride (Chloromethane)	LA-DEQ	4960	10248803
Methyl isobutyl ketone (Hexone) (MIBK)	LA-DEQ	4985	10248803
Methyl methacrylate	LA-DEQ	4990	10248803
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10248803
Methylcyclohexane	LA-DEQ	4965	10248803
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10248803
n-Butane	LA-DEQ	5007	10248803
n-Heptane	LA-DEQ	4825	10248803
n-Hexane	LA-DEQ	4850	10248803
n-Nonane	LA-DEQ	5026	10248803
n-Pentane	LA-DEQ	5028	10248803
n-Propylbenzene	LA-DEQ	5090	10248803
o-Xylene	LA-DEQ	5250	10248803

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704245-20-19
Expiration Date: 10/31/2021
Issue Date: 12/15/2020

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road
Mount Juliet, TN 37122-2508

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Matrix: ***Air & Emissions***

Styrene	LA-DEQ	5100	10248803
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10248803
Toluene	LA-DEQ	5140	10248803
trans-1,2-Dichloroethylene	LA-DEQ	4700	10248803
trans-1,3-Dichloropropylene	LA-DEQ	4685	10248803
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10248803
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10248803
Vinyl acetate	LA-DEQ	5225	10248803
Vinyl bromide (Bromoethene)	LA-DEQ	5230	10248803
Vinyl chloride	LA-DEQ	5235	10248803
Xylene (total)	LA-DEQ	5260	10248803

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Matrix: ***Drinking Water***

Method ASTM D5174

Analyte	AB	Analyte ID	Method ID
Uranium	UT	3035	30031608

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	UT	1000	10013806
Barium	UT	1015	10013806
Beryllium	UT	1020	10013806
Boron	UT	1025	10013806
Cadmium	UT	1030	10013806
Chromium	UT	1040	10013806
Copper	UT	1055	10013806
Iron	UT	1070	10013806
Magnesium	UT	1085	10013806
Manganese	UT	1090	10013806
Molybdenum	UT	1100	10013806
Nickel	UT	1105	10013806
Potassium	UT	1125	10013806
Silica as SiO2	UT	1990	10013806
Silver	UT	1150	10013806
Sodium	UT	1155	10013806
Vanadium	UT	1185	10013806
Zinc	UT	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	UT	1000	10014605
Antimony	UT	1005	10014605
Arsenic	UT	1010	10014605
Barium	UT	1015	10014605
Beryllium	UT	1020	10014605
Cadmium	UT	1030	10014605

Certificate: T104704245-20-19

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Matrix: ***Drinking Water***

Chromium	UT	1040	10014605
Copper	UT	1055	10014605
Lead	UT	1075	10014605
Manganese	UT	1090	10014605
Nickel	UT	1105	10014605
Selenium	UT	1140	10014605
Silver	UT	1150	10014605
Thallium	UT	1165	10014605
Uranium	UT	3035	10014605
Zinc	UT	1190	10014605

Method EPA 245.1

Analyte	AB	Analyte ID	Method ID
Mercury	UT	1095	10036609

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	UT	1540	10053200
Chloride	UT	1575	10053200
Fluoride	UT	1730	10053200
Nitrate as N	UT	1810	10053200
Nitrite as N	UT	1840	10053200
Sulfate	UT	2000	10053200

Method EPA 314.0

Analyte	AB	Analyte ID	Method ID
Perchlorate	UT	1895	10277006

Method EPA 335.4

Analyte	AB	Analyte ID	Method ID
Total cyanide	UT	1645	10061402

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate as N	UT	1810	10067604
Nitrite as N	UT	1840	10067604

Certificate: T104704245-20-19

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

Expiration Date: 10/31/2021

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Matrix: ***Drinking Water***

Method EPA 504.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2-Dibromo-3-chloropropane (DBCP)	UT	4570	10082801
1,2-Dibromoethane (EDB, Ethylene dibromide)	UT	4585	10082801

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	UT	5160	10088809
1,1,2-Trichloroethane	UT	5165	10088809
1,1-Dichloroethylene	UT	4640	10088809
1,2,4-Trichlorobenzene	UT	5155	10088809
1,2-Dichlorobenzene	UT	4610	10088809
1,2-Dichloroethane (Ethylene dichloride)	UT	4635	10088809
1,2-Dichloropropane	UT	4655	10088809
1,4-Dichlorobenzene	UT	4620	10088809
Benzene	UT	4375	10088809
Carbon tetrachloride	UT	4455	10088809
Chlorobenzene	UT	4475	10088809
cis-1,2-Dichloroethylene	UT	4645	10088809
Ethylbenzene	UT	4765	10088809
Methylene chloride (Dichloromethane)	UT	4975	10088809
Styrene	UT	5100	10088809
Tetrachloroethylene (Perchloroethylene)	UT	5115	10088809
Toluene	UT	5140	10088809
Total trihalomethanes	UT	5205	10088809
trans-1,2-Dichloroethylene	UT	4700	10088809
Trichloroethene (Trichloroethylene)	UT	5170	10088809
Vinyl chloride	UT	5235	10088809
Xylene (total)	UT	5260	10088809

Method EPA 552.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Total haloacetic acids	UT	9414	10095804

		Certificate:	**T104704245-20-19**
Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation		**Expiration Date:**	**10/31/2021**
12065 Lebanon Road Mount Juliet, TN 37122-2508		**Issue Date:**	**12/15/2020**

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Matrix: ***Drinking Water***

Method EPA 900.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	UT	2830	10308200
Gross-beta	UT	2840	10308200

Method EPA 901.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross gamma	UT	2855	10308608

Method EPA 903.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-226	UT	2965	10309407

Method EPA 904.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-228	UT	2970	10309805

Method EPA 905.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Strontium-89	UT	2995	10310006
Strontium-90	UT	3005	10310006

Method EPA 906.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Tritium	UT	3030	10310200

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	UT	1610	20048004

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	UT	1955	20049803

Method SM 4110 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Fluoride	UT	1730	20076408
Nitrate as N	UT	1810	20076408
Nitrite as N	UT	1840	20076408

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation	**Certificate:**	**T104704245-20-19**
	Expiration Date:	**10/31/2021**
12065 Lebanon Road **Mount Juliet, TN 37122-2508**	**Issue Date:**	**12/15/2020**

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Matrix: ***Drinking Water***

Method SM 4500-CN$^-$ C,E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	UT	1645	20092404

Method SM 4500-CN$^-$ C,G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	UT	1510	20093203

Method SM 7500-Ra B

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-226	UT	2965	20170007

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Issue Date: 12/15/2020

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road
Mount Juliet, TN 37122-2508

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Matrix: ***Non-Potable Water***

Method EPA 1000.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Chronic toxicity	LA-DEQ	3325	10252605

Method EPA 1002.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Chronic toxicity	LA-DEQ	3325	10253006

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	LA-DEQ	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	10006403

Method EPA 130.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	10006801

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	LA-DEQ	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	LA-DEQ	850	10119003

Method EPA 150.1

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	10008409

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	LA-DEQ	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	LA-DEQ	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	LA-DEQ	10220	10127807

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

Expiration Date: 10/31/2021

12065 Lebanon Road
Mount Juliet, TN 37122-2508

Issue Date: 12/15/2020

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Matrix: ***Non-Potable Water***

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	LA-DEQ	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10013806
Antimony	LA-DEQ	1005	10013806
Arsenic	LA-DEQ	1010	10013806
Barium	LA-DEQ	1015	10013806
Beryllium	LA-DEQ	1020	10013806
Boron	LA-DEQ	1025	10013806
Cadmium	LA-DEQ	1030	10013806
Calcium	LA-DEQ	1035	10013806
Chromium	LA-DEQ	1040	10013806
Cobalt	LA-DEQ	1050	10013806
Copper	LA-DEQ	1055	10013806
Iron	LA-DEQ	1070	10013806
Lead	LA-DEQ	1075	10013806
Lithium	LA-DEQ	1080	10013806
Magnesium	LA-DEQ	1085	10013806
Manganese	LA-DEQ	1090	10013806
Molybdenum	LA-DEQ	1100	10013806
Nickel	LA-DEQ	1105	10013806
Phosphorus	LA-DEQ	1910	10013806
Potassium	LA-DEQ	1125	10013806
Selenium	LA-DEQ	1140	10013806
Silica as SiO2	LA-DEQ	1990	10013806
Silver	LA-DEQ	1150	10013806
Sodium	LA-DEQ	1155	10013806
Strontium	LA-DEQ	1160	10013806
Thallium	LA-DEQ	1165	10013806

Matrix: ***Non-Potable Water***

Tin	LA-DEQ	1175	10013806
Titanium	LA-DEQ	1180	10013806
Vanadium	LA-DEQ	1185	10013806
Zinc	LA-DEQ	1190	10013806

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10014605
Antimony	LA-DEQ	1005	10014605
Arsenic	LA-DEQ	1010	10014605
Barium	LA-DEQ	1015	10014605
Beryllium	LA-DEQ	1020	10014605
Boron	LA-DEQ	1025	10014605
Cadmium	LA-DEQ	1030	10014605
Calcium	LA-DEQ	1035	10014605
Chromium	LA-DEQ	1040	10014605
Cobalt	LA-DEQ	1050	10014605
Copper	LA-DEQ	1055	10014605
Iron	LA-DEQ	1070	10014605
Lead	LA-DEQ	1075	10014605
Magnesium	LA-DEQ	1085	10014605
Manganese	LA-DEQ	1090	10014605
Molybdenum	LA-DEQ	1100	10014605
Nickel	LA-DEQ	1105	10014605
Potassium	LA-DEQ	1125	10014605
Selenium	LA-DEQ	1140	10014605
Silver	LA-DEQ	1150	10014605
Sodium	LA-DEQ	1155	10014605
Strontium	LA-DEQ	1160	10014605
Thallium	LA-DEQ	1165	10014605
Thorium	LA-DEQ	1170	10014605

Matrix: ***Non-Potable Water***

Tin	LA-DEQ	1175	10014605
Titanium	LA-DEQ	1180	10014605
Uranium	LA-DEQ	3035	10014605
Vanadium	LA-DEQ	1185	10014605
Zinc	LA-DEQ	1190	10014605

Method EPA 2000.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Acute toxicity	LA-DEQ	3300	10264809

Method EPA 2002.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Acute toxicity	LA-DEQ	3300	10214901

Method EPA 218.6

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10028009

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DEQ	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10053200
Chloride	LA-DEQ	1575	10053200
Fluoride	LA-DEQ	1730	10053200
Nitrate as N	LA-DEQ	1810	10053200
Nitrate-nitrite	LA-DEQ	1820	10053200
Nitrite as N	LA-DEQ	1840	10053200
Sulfate	LA-DEQ	2000	10053200

Method EPA 310.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	LA-DEQ	1505	10055206

Method EPA 314.0

Analyte	**AB**	**Analyte ID**	**Method ID**

Perchlorate	LA-DEQ	1895	10277006

Method EPA 335.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	LA-DEQ	1645	10061402

Method EPA 350.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	LA-DEQ	1515	10063408

Method EPA 351.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	LA-DEQ	1790	10065404

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate-nitrite	LA-DEQ	1820	10067400

Method EPA 365.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Phosphorus	LA-DEQ	1910	10070005

Method EPA 365.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	LA-DEQ	1870	10070403

Method EPA 365.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Phosphorus	LA-DEQ	1910	10071202

Method EPA 410.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	LA-DEQ	1565	10077404

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10079400

Method EPA 420.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10080203

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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12065 Lebanon Road
Mount Juliet, TN 37122-2508

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Matrix: ***Non-Potable Water***

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10155201
Antimony	LA-DEQ	1005	10155201
Arsenic	LA-DEQ	1010	10155201
Barium	LA-DEQ	1015	10155201
Beryllium	LA-DEQ	1020	10155201
Boron	LA-DEQ	1025	10155201
Cadmium	LA-DEQ	1030	10155201
Calcium	LA-DEQ	1035	10155201
Chromium	LA-DEQ	1040	10155201
Cobalt	LA-DEQ	1050	10155201
Copper	LA-DEQ	1055	10155201
Iron	LA-DEQ	1070	10155201
Lead	LA-DEQ	1075	10155201
Lithium	LA-DEQ	1080	10155201
Magnesium	LA-DEQ	1085	10155201
Manganese	LA-DEQ	1090	10155201
Molybdenum	LA-DEQ	1100	10155201
Nickel	LA-DEQ	1105	10155201
Phosphorus	LA-DEQ	1910	10155201
Potassium	LA-DEQ	1125	10155201
Selenium	LA-DEQ	1140	10155201
Silver	LA-DEQ	1150	10155201
Sodium	LA-DEQ	1155	10155201
Strontium	LA-DEQ	1160	10155201
Thallium	LA-DEQ	1165	10155201
Tin	LA-DEQ	1175	10155201
Titanium	LA-DEQ	1180	10155201
Vanadium	LA-DEQ	1185	10155201

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Matrix: ***Non-Potable Water***

Zinc	LA-DEQ	1190	10155201

Method EPA 602

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	LA-DEQ	4375	10102202
Ethylbenzene	LA-DEQ	4765	10102202
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10102202
Toluene	LA-DEQ	5140	10102202
Xylene (total)	LA-DEQ	5260	10102202

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10156419
Antimony	LA-DEQ	1005	10156419
Arsenic	LA-DEQ	1010	10156419
Barium	LA-DEQ	1015	10156419
Beryllium	LA-DEQ	1020	10156419
Boron	LA-DEQ	1025	10156419
Cadmium	LA-DEQ	1030	10156419
Calcium	LA-DEQ	1035	10156419
Chromium	LA-DEQ	1040	10156419
Cobalt	LA-DEQ	1050	10156419
Copper	LA-DEQ	1055	10156419
Iron	LA-DEQ	1070	10156419
Lead	LA-DEQ	1075	10156419
Magnesium	LA-DEQ	1085	10156419
Manganese	LA-DEQ	1090	10156419
Molybdenum	LA-DEQ	1100	10156419
Nickel	LA-DEQ	1105	10156419
Potassium	LA-DEQ	1125	10156419
Selenium	LA-DEQ	1140	10156419
Silver	LA-DEQ	1150	10156419
Sodium	LA-DEQ	1155	10156419

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Matrix: ***Non-Potable Water***

Strontium	LA-DEQ	1160	10156419
Thallium	LA-DEQ	1165	10156419
Tin	LA-DEQ	1175	10156419
Titanium	LA-DEQ	1180	10156419
Vanadium	LA-DEQ	1185	10156419
Zinc	LA-DEQ	1190	10156419

Method EPA 608.3

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	LA-DEQ	7355	10296625
4,4'-DDE	LA-DEQ	7360	10296625
4,4'-DDT	LA-DEQ	7365	10296625
Aldrin	LA-DEQ	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10296625
alpha-Chlordane	LA-DEQ	7240	10296625
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10296625
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10296625
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10296625
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10296625
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10296625
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10296625
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10296625
Chlordane (tech.)	LA-DEQ	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10296625
Dieldrin	LA-DEQ	7470	10296625
Endosulfan I	LA-DEQ	7510	10296625
Endosulfan II	LA-DEQ	7515	10296625
Endosulfan sulfate	LA-DEQ	7520	10296625
Endrin	LA-DEQ	7540	10296625
Endrin aldehyde	LA-DEQ	7530	10296625

Endrin ketone	LA-DEQ	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10296625
gamma-Chlordane	LA-DEQ	7245	10296625
Heptachlor	LA-DEQ	7685	10296625
Heptachlor epoxide	LA-DEQ	7690	10296625
Methoxychlor	LA-DEQ	7810	10296625
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10296625

Method EPA 610

Analyte	**AB**	**Analyte ID**	**Method ID**
Acenaphthene	LA-DEQ	5500	10104402
Acenaphthylene	LA-DEQ	5505	10104402
Anthracene	LA-DEQ	5555	10104402
Benzo(a)anthracene	LA-DEQ	5575	10104402
Benzo(a)pyrene	LA-DEQ	5580	10104402
Benzo(b)fluoranthene	LA-DEQ	5585	10104402
Benzo(g,h,i)perylene	LA-DEQ	5590	10104402
Benzo(k)fluoranthene	LA-DEQ	5600	10104402
Chrysene	LA-DEQ	5855	10104402
Dibenz(a,h) anthracene	LA-DEQ	5895	10104402
Fluoranthene	LA-DEQ	6265	10104402
Fluorene	LA-DEQ	6270	10104402
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10104402
Naphthalene	LA-DEQ	5005	10104402
Phenanthrene	LA-DEQ	6615	10104402
Pyrene	LA-DEQ	6665	10104402

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	LA-DEQ	5160	10298121
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10298121
1,1,2-Trichloroethane	LA-DEQ	5165	10298121
1,1-Dichloroethane	LA-DEQ	4630	10298121

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Matrix: ***Non-Potable Water***

1,1-Dichloroethylene	LA-DEQ	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10298121
1,2-Dichlorobenzene	LA-DEQ	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10298121
1,2-Dichloropropane	LA-DEQ	4655	10298121
1,3-Dichlorobenzene	LA-DEQ	4615	10298121
1,4-Dichlorobenzene	LA-DEQ	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10298121
2-Chloroethyl vinyl ether	LA-DEQ	4500	10298121
Acetone (2-Propanone)	LA-DEQ	4315	10298121
Acrolein (Propenal)	LA-DEQ	4325	10298121
Acrylonitrile	LA-DEQ	4340	10298121
Benzene	LA-DEQ	4375	10298121
Bromodichloromethane	LA-DEQ	4395	10298121
Bromoform	LA-DEQ	4400	10298121
Carbon tetrachloride	LA-DEQ	4455	10298121
Chlorobenzene	LA-DEQ	4475	10298121
Chlorodibromomethane	LA-DEQ	4575	10298121
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10298121
Chloroform	LA-DEQ	4505	10298121
cis-1,2-Dichloroethylene	LA-DEQ	4645	10298121
cis-1,3-Dichloropropene	LA-DEQ	4680	10298121
Ethylbenzene	LA-DEQ	4765	10298121
m+p-xylene	LA-DEQ	5240	10298121
Methyl bromide (Bromomethane)	LA-DEQ	4950	10298121
Methyl chloride (Chloromethane)	LA-DEQ	4960	10298121
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10298121
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10298121
Naphthalene	LA-DEQ	5005	10298121
o-Xylene	LA-DEQ	5250	10298121

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Matrix: ***Non-Potable Water***

Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10298121
Toluene	LA-DEQ	5140	10298121
Total trihalomethanes	LA-DEQ	5205	10298121
trans-1,2-Dichloroethylene	LA-DEQ	4700	10298121
trans-1,3-Dichloropropylene	LA-DEQ	4685	10298121
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10298121
Vinyl chloride	LA-DEQ	5235	10298121
Xylene (total)	LA-DEQ	5260	10298121

Method EPA 625.1

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10300024
1,2,4-Trichlorobenzene	LA-DEQ	5155	10300024
1,2-Dichlorobenzene	LA-DEQ	4610	10300024
1,2-Diphenylhydrazine	LA-DEQ	6221	10300024
1,3-Dichlorobenzene	LA-DEQ	4615	10300024
1,4-Dichlorobenzene	LA-DEQ	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10300024
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10300024
2,4,5-Trichlorophenol	LA-DEQ	6835	10300024
2,4,6-Trichlorophenol	LA-DEQ	6840	10300024
2,4-Dichlorophenol	LA-DEQ	6000	10300024
2,4-Dimethylphenol	LA-DEQ	6130	10300024
2,4-Dinitrophenol	LA-DEQ	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10300024
2-Chloronaphthalene	LA-DEQ	5795	10300024
2-Chlorophenol	LA-DEQ	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10300024
2-Methylphenol (o-Cresol)	LA-DEQ	6400	10300024

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Matrix: ***Non-Potable Water***

2-Nitrophenol	LA-DEQ	6490	10300024
3,3'-Dichlorobenzidine	LA-DEQ	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10300024
4-Chloro-3-methylphenol	LA-DEQ	5700	10300024
4-Chlorophenyl phenylether	LA-DEQ	5825	10300024
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10300024
4-Nitrophenol	LA-DEQ	6500	10300024
Acenaphthene	LA-DEQ	5500	10300024
Acenaphthylene	LA-DEQ	5505	10300024
Anthracene	LA-DEQ	5555	10300024
Benzidine	LA-DEQ	5595	10300024
Benzo(a)anthracene	LA-DEQ	5575	10300024
Benzo(a)pyrene	LA-DEQ	5580	10300024
Benzo(b)fluoranthene	LA-DEQ	5585	10300024
Benzo(g,h,i)perylene	LA-DEQ	5590	10300024
Benzo(k)fluoranthene	LA-DEQ	5600	10300024
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10300024
bis(2-Chloroethyl) ether	LA-DEQ	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10300024
Butyl benzyl phthalate	LA-DEQ	5670	10300024
Chrysene	LA-DEQ	5855	10300024
Dibenz(a,h) anthracene	LA-DEQ	5895	10300024
Diethyl phthalate	LA-DEQ	6070	10300024
Dimethyl phthalate	LA-DEQ	6135	10300024
Di-n-butyl phthalate	LA-DEQ	5925	10300024
Di-n-octyl phthalate	LA-DEQ	6200	10300024
Fluoranthene	LA-DEQ	6265	10300024
Fluorene	LA-DEQ	6270	10300024
Hexachlorobenzene	LA-DEQ	6275	10300024
Hexachlorobutadiene	LA-DEQ	4835	10300024

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Matrix: ***Non-Potable Water***

Hexachlorocyclopentadiene	LA-DEQ	6285	10300024
Hexachloroethane	LA-DEQ	4840	10300024
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10300024
Isophorone	LA-DEQ	6320	10300024
Naphthalene	LA-DEQ	5005	10300024
Nitrobenzene	LA-DEQ	5015	10300024
n-Nitrosodiethylamine	LA-DEQ	6525	10300024
n-Nitrosodimethylamine	LA-DEQ	6530	10300024
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10300024
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10300024
n-Nitrosodiphenylamine	LA-DEQ	6535	10300024
Pentachlorobenzene	LA-DEQ	6590	10300024
Pentachlorophenol	LA-DEQ	6605	10300024
Phenanthrene	LA-DEQ	6615	10300024
Phenol	LA-DEQ	6625	10300024
Pyrene	LA-DEQ	6665	10300024
Pyridine	LA-DEQ	5095	10300024

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10162206

Method EPA 7199

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10163005

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DEQ	1095	10165603

Method EPA 8011

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10173009
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10173009

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Matrix: ***Non-Potable Water***

Method EPA 8015

Analyte	**AB**	**Analyte ID**	**Method ID**
Diesel range organics (DRO)	LA-DEQ	9369	10173203
Ethanol	LA-DEQ	4750	10173203
Ethylene glycol	LA-DEQ	4785	10173203
Gasoline range organics (GRO)	LA-DEQ	9408	10173203
Methanol	LA-DEQ	4930	10173203
Propylene Glycol	LA-DEQ	6657	10173203

Method EPA 8021

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	LA-DEQ	4375	10174400
Ethylbenzene	LA-DEQ	4765	10174400
m+p-xylene	LA-DEQ	5240	10174400
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10174400
o-Xylene	LA-DEQ	5250	10174400
Toluene	LA-DEQ	5140	10174400
Xylene (total)	LA-DEQ	5260	10174400

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	LA-DEQ	7355	10178402
4,4'-DDE	LA-DEQ	7360	10178402
4,4'-DDT	LA-DEQ	7365	10178402
Aldrin	LA-DEQ	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10178402
alpha-Chlordane	LA-DEQ	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10178402
Chlordane (tech.)	LA-DEQ	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10178402
Dieldrin	LA-DEQ	7470	10178402
Endosulfan I	LA-DEQ	7510	10178402
Endosulfan II	LA-DEQ	7515	10178402

Matrix: ***Non-Potable Water***

Endosulfan sulfate	LA-DEQ	7520	10178402
Endrin	LA-DEQ	7540	10178402
Endrin aldehyde	LA-DEQ	7530	10178402
Endrin ketone	LA-DEQ	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10178402
gamma-Chlordane	LA-DEQ	7245	10178402
Heptachlor	LA-DEQ	7685	10178402
Heptachlor epoxide	LA-DEQ	7690	10178402
Hexachlorobenzene	LA-DEQ	6275	10178402
Methoxychlor	LA-DEQ	7810	10178402
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10178402

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10179007
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10179007
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10179007
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10179007
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10179007
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10179007
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10179007
PCBs (total)	LA-DEQ	8870	10179007

Method EPA 8141

Analyte	AB	Analyte ID	Method ID
Atrazine	LA-DEQ	7065	10181803
Azinphos-methyl (Guthion)	LA-DEQ	7075	10181803
Bolstar (Sulprofos)	LA-DEQ	7125	10181803
Carbophenothion	LA-DEQ	7220	10181803
Chlorpyrifos (Dursban)	LA-DEQ	7300	10181803
Coumaphos	LA-DEQ	7315	10181803
Demeton	LA-DEQ	7390	10181803
Demeton-o	LA-DEQ	7395	10181803

Matrix: ***Non-Potable Water***

Demeton-s	LA-DEQ	7385	10181803
Diazinon	LA-DEQ	7410	10181803
Dichlorovos (DDVP, Dichlorvos)	LA-DEQ	8610	10181803
Dimethoate	LA-DEQ	7475	10181803
Disulfoton	LA-DEQ	8625	10181803
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	LA-DEQ	7550	10181803
Ethion	LA-DEQ	7565	10181803
Ethoprop	LA-DEQ	7570	10181803
Famphur	LA-DEQ	7580	10181803
Fensulfothion	LA-DEQ	7600	10181803
Fenthion	LA-DEQ	7605	10181803
Malathion	LA-DEQ	7770	10181803
Merphos	LA-DEQ	7785	10181803
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10181803
Mevinphos	LA-DEQ	7850	10181803
Naled	LA-DEQ	7905	10181803
Parathion, ethyl	LA-DEQ	7955	10181803
Phorate	LA-DEQ	7985	10181803
Phosmet (Imidan)	LA-DEQ	8000	10181803
Ronnel	LA-DEQ	8110	10181803
Sulfotepp	LA-DEQ	8155	10181803
Tetrachlorvinphos (Stirophos, Gardona)	LA-DEQ	8197	10181803
Tetraethyl pyrophosphate (TEPP)	LA-DEQ	8210	10181803
Tokuthion (Prothiophos)	LA-DEQ	8245	10181803
Trichloronate	LA-DEQ	8275	10181803

Method EPA 8151

Analyte	AB	Analyte ID	Method ID
2,4,5-T	LA-DEQ	8655	10183003
2,4-D	LA-DEQ	8545	10183003
2,4-DB	LA-DEQ	8560	10183003

Dalapon	LA-DEQ	8555	10183003
Dicamba	LA-DEQ	8595	10183003
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10183003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10183003
MCPA	LA-DEQ	7775	10183003
MCPP	LA-DEQ	7780	10183003
Pentachlorophenol	LA-DEQ	6605	10183003
Silvex (2,4,5-TP)	LA-DEQ	8650	10183003

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	LA-DEQ	5105	10184404
1,1,1-Trichloroethane	LA-DEQ	5160	10184404
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10184404
1,1,2-Trichloroethane	LA-DEQ	5165	10184404
1,1-Dichloroethane	LA-DEQ	4630	10184404
1,1-Dichloroethylene	LA-DEQ	4640	10184404
1,1-Dichloropropene	LA-DEQ	4670	10184404
1,2,3-Trichlorobenzene	LA-DEQ	5150	10184404
1,2,3-Trichloropropane	LA-DEQ	5180	10184404
1,2,4-Trichlorobenzene	LA-DEQ	5155	10184404
1,2,4-Trimethylbenzene	LA-DEQ	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10184404
1,2-Dichlorobenzene	LA-DEQ	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10184404
1,2-Dichloropropane	LA-DEQ	4655	10184404
1,3,5-Trimethylbenzene	LA-DEQ	5215	10184404
1,3-Dichlorobenzene	LA-DEQ	4615	10184404
1,3-Dichloropropane	LA-DEQ	4660	10184404

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Non-Potable Water***

1,4-Dichlorobenzene	LA-DEQ	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10184404
2,2-Dichloropropane	LA-DEQ	4665	10184404
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10184404
2-Chloroethyl vinyl ether	LA-DEQ	4500	10184404
2-Chlorotoluene	LA-DEQ	4535	10184404
2-Hexanone (MBK)	LA-DEQ	4860	10184404
2-Nitropropane	LA-DEQ	5020	10184404
4-Chlorotoluene	LA-DEQ	4540	10184404
4-Isopropyltoluene (p-Cymene)	LA-DEQ	4915	10184404
4-Methyl-2-pentanone (MIBK)	LA-DEQ	4995	10184404
Acetone (2-Propanone)	LA-DEQ	4315	10184404
Acetonitrile	LA-DEQ	4320	10184404
Acrolein (Propenal)	LA-DEQ	4325	10184404
Acrylonitrile	LA-DEQ	4340	10184404
Allyl chloride (3-Chloropropene)	LA-DEQ	4355	10184404
Benzene	LA-DEQ	4375	10184404
Bromobenzene	LA-DEQ	4385	10184404
Bromochloromethane	LA-DEQ	4390	10184404
Bromodichloromethane	LA-DEQ	4395	10184404
Bromoform	LA-DEQ	4400	10184404
Carbon disulfide	LA-DEQ	4450	10184404
Carbon tetrachloride	LA-DEQ	4455	10184404
Chlorobenzene	LA-DEQ	4475	10184404
Chlorodibromomethane	LA-DEQ	4575	10184404
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10184404
Chloroform	LA-DEQ	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	LA-DEQ	4525	10184404
cis-1,2-Dichloroethylene	LA-DEQ	4645	10184404
cis-1,3-Dichloropropene	LA-DEQ	4680	10184404

Matrix: ***Non-Potable Water***

cis-1,4-Dichloro-2-butene	LA-DEQ	4600	10184404
Dibromomethane (Methylene bromide)	LA-DEQ	4595	10184404
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10184404
Diethyl ether	LA-DEQ	4725	10184404
Di-isopropylether (DIPE)	LA-DEQ	9375	10184404
Ethanol	LA-DEQ	4750	10184404
Ethyl acetate	LA-DEQ	4755	10184404
Ethyl methacrylate	LA-DEQ	4810	10184404
Ethylbenzene	LA-DEQ	4765	10184404
Ethyl-t-butylether (ETBE) (2-Ethoxy-2-methylpropane)	LA-DEQ	4770	10184404
Hexachlorobutadiene	LA-DEQ	4835	10184404
Hexachloroethane	LA-DEQ	4840	10184404
Iodomethane (Methyl iodide)	LA-DEQ	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	LA-DEQ	4875	10184404
Isopropyl alcohol (2-Propanol, Isopropanol)	LA-DEQ	4895	10184404
Isopropylbenzene (Cumene)	LA-DEQ	4900	10184404
m+p-xylene	LA-DEQ	5240	10184404
Methacrylonitrile	LA-DEQ	4925	10184404
Methanol	LA-DEQ	4930	10184404
Methyl acetate	LA-DEQ	4940	10184404
Methyl acrylate	LA-DEQ	4945	10184404
Methyl bromide (Bromomethane)	LA-DEQ	4950	10184404
Methyl chloride (Chloromethane)	LA-DEQ	4960	10184404
Methyl methacrylate	LA-DEQ	4990	10184404
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10184404
Methylcyclohexane	LA-DEQ	4965	10184404
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10184404
Naphthalene	LA-DEQ	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	LA-DEQ	4425	10184404
n-Butylbenzene	LA-DEQ	4435	10184404

Matrix: ***Non-Potable Water***

n-Propylbenzene	LA-DEQ	5090	10184404
o-Xylene	LA-DEQ	5250	10184404
Pentachloroethane	LA-DEQ	5035	10184404
Propionitrile (Ethyl cyanide)	LA-DEQ	5080	10184404
sec-Butylbenzene	LA-DEQ	4440	10184404
Styrene	LA-DEQ	5100	10184404
T-amylmethylether (TAME)	LA-DEQ	4370	10184404
tert-Butyl alcohol	LA-DEQ	4420	10184404
tert-Butylbenzene	LA-DEQ	4445	10184404
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10184404
Toluene	LA-DEQ	5140	10184404
trans-1,2-Dichloroethylene	LA-DEQ	4700	10184404
trans-1,3-Dichloropropylene	LA-DEQ	4685	10184404
trans-1,4-Dichloro-2-butene	LA-DEQ	4605	10184404
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10184404
Vinyl acetate	LA-DEQ	5225	10184404
Vinyl chloride	LA-DEQ	5235	10184404
Xylene (total)	LA-DEQ	5260	10184404

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10185203
1,2,4-Trichlorobenzene	LA-DEQ	5155	10185203
1,2-Dichlorobenzene	LA-DEQ	4610	10185203
1,2-Diphenylhydrazine	LA-DEQ	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10185203
1,3-Dichlorobenzene	LA-DEQ	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10185203
1,4-Dichlorobenzene	LA-DEQ	4620	10185203
1,4-Naphthoquinone	LA-DEQ	6420	10185203

Matrix: ***Non-Potable Water***

1,4-Phenylenediamine	LA-DEQ	6630	10185203
1-Chloronaphthalene	LA-DEQ	5790	10185203
1-Naphthylamine	LA-DEQ	6425	10185203
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10185203
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10185203
2,4,5-Trichlorophenol	LA-DEQ	6835	10185203
2,4,6-Trichlorophenol	LA-DEQ	6840	10185203
2,4-Dichlorophenol	LA-DEQ	6000	10185203
2,4-Dimethylphenol	LA-DEQ	6130	10185203
2,4-Dinitrophenol	LA-DEQ	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10185203
2,6-Dichlorophenol	LA-DEQ	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10185203
2-Acetylaminofluorene	LA-DEQ	5515	10185203
2-Chloronaphthalene	LA-DEQ	5795	10185203
2-Chlorophenol	LA-DEQ	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10185203
2-Methylaniline (o-Toluidine)	LA-DEQ	5145	10185203
2-Methylnaphthalene	LA-DEQ	6385	10185203
2-Methylphenol (o-Cresol)	LA-DEQ	6400	10185203
2-Naphthylamine	LA-DEQ	6430	10185203
2-Nitroaniline	LA-DEQ	6460	10185203
2-Nitrophenol	LA-DEQ	6490	10185203
2-Picoline (2-Methylpyridine)	LA-DEQ	5050	10185203
3,3'-Dichlorobenzidine	LA-DEQ	5945	10185203
3,3'-Dimethylbenzidine	LA-DEQ	6120	10185203
3-Methylcholanthrene	LA-DEQ	6355	10185203
3-Methylphenol (m-Cresol)	LA-DEQ	6405	10185203
3-Nitroaniline	LA-DEQ	6465	10185203
4,4'-Methylenebis(2-chloroaniline)	LA-DEQ	6365	10185203

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Matrix: ***Non-Potable Water***

4-Aminobiphenyl	LA-DEQ	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10185203
4-Chloro-3-methylphenol	LA-DEQ	5700	10185203
4-Chloroaniline	LA-DEQ	5745	10185203
4-Chlorophenyl phenylether	LA-DEQ	5825	10185203
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10185203
4-Nitroaniline	LA-DEQ	6470	10185203
4-Nitrophenol	LA-DEQ	6500	10185203
4-Nitroquinoline-1-oxide	LA-DEQ	6510	10185203
5-Nitro-o-toluidine	LA-DEQ	6570	10185203
7,12-Dimethylbenz(a) anthracene	LA-DEQ	6115	10185203
a-a-Dimethylphenethylamine	LA-DEQ	6125	10185203
Acenaphthene	LA-DEQ	5500	10185203
Acenaphthylene	LA-DEQ	5505	10185203
Acetophenone	LA-DEQ	5510	10185203
Aniline	LA-DEQ	5545	10185203
Anthracene	LA-DEQ	5555	10185203
Aramite	LA-DEQ	5560	10185203
Atrazine	LA-DEQ	7065	10185203
Benzenethiol (Thiophenol)	LA-DEQ	6750	10185203
Benzidine	LA-DEQ	5595	10185203
Benzo(a)anthracene	LA-DEQ	5575	10185203
Benzo(a)pyrene	LA-DEQ	5580	10185203
Benzo(b)fluoranthene	LA-DEQ	5585	10185203
Benzo(g,h,i)perylene	LA-DEQ	5590	10185203
Benzo(k)fluoranthene	LA-DEQ	5600	10185203
Benzoic acid	LA-DEQ	5610	10185203
Benzyl alcohol	LA-DEQ	5630	10185203
Biphenyl	LA-DEQ	5640	10185203
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10185203

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Matrix: ***Non-Potable Water***

bis(2-Chloroethyl) ether	LA-DEQ	5765	10185203
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10185203
Butyl benzyl phthalate	LA-DEQ	5670	10185203
Caprolactam	LA-DEQ	7180	10185203
Carbazole	LA-DEQ	5680	10185203
Chlorobenzilate	LA-DEQ	7260	10185203
Chrysene	LA-DEQ	5855	10185203
Diallate	LA-DEQ	7405	10185203
Dibenz(a,h) anthracene	LA-DEQ	5895	10185203
Dibenz(a,j) acridine	LA-DEQ	5900	10185203
Dibenzo(a,e) pyrene	LA-DEQ	5890	10185203
Dibenzofuran	LA-DEQ	5905	10185203
Diethyl phthalate	LA-DEQ	6070	10185203
Dimethoate	LA-DEQ	7475	10185203
Dimethyl phthalate	LA-DEQ	6135	10185203
Di-n-butyl phthalate	LA-DEQ	5925	10185203
Di-n-octyl phthalate	LA-DEQ	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10185203
Diphenylamine	LA-DEQ	6205	10185203
Disulfoton	LA-DEQ	8625	10185203
Ethyl methanesulfonate	LA-DEQ	6260	10185203
Famphur	LA-DEQ	7580	10185203
Fluoranthene	LA-DEQ	6265	10185203
Fluorene	LA-DEQ	6270	10185203
Hexachlorobenzene	LA-DEQ	6275	10185203
Hexachlorobutadiene	LA-DEQ	4835	10185203
Hexachlorocyclopentadiene	LA-DEQ	6285	10185203
Hexachloroethane	LA-DEQ	4840	10185203
Hexachlorophene	LA-DEQ	6290	10185203
Hexachloropropene	LA-DEQ	6295	10185203

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Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10185203
Isodrin	LA-DEQ	7725	10185203
Isophorone	LA-DEQ	6320	10185203
Isosafrole	LA-DEQ	6325	10185203
Kepone	LA-DEQ	7740	10185203
Methapyrilene	LA-DEQ	6345	10185203
Methyl methanesulfonate	LA-DEQ	6375	10185203
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10185203
Naphthalene	LA-DEQ	5005	10185203
Nitrobenzene	LA-DEQ	5015	10185203
n-Nitrosodiethylamine	LA-DEQ	6525	10185203
n-Nitrosodimethylamine	LA-DEQ	6530	10185203
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10185203
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10185203
n-Nitrosodiphenylamine	LA-DEQ	6535	10185203
n-Nitrosomethylethylamine	LA-DEQ	6550	10185203
n-Nitrosomorpholine	LA-DEQ	6555	10185203
n-Nitrosopiperidine	LA-DEQ	6560	10185203
n-Nitrosopyrrolidine	LA-DEQ	6565	10185203
o,o,o-Triethyl phosphorothioate	LA-DEQ	8290	10185203
Parathion, ethyl	LA-DEQ	7955	10185805
Pentachlorobenzene	LA-DEQ	6590	10185203
Pentachloronitrobenzene (PCNB)	LA-DEQ	6600	10185203
Pentachlorophenol	LA-DEQ	6605	10185203
Phenacetin	LA-DEQ	6610	10185203
Phenanthrene	LA-DEQ	6615	10185203
Phenol	LA-DEQ	6625	10185203
Phorate	LA-DEQ	7985	10185203
Phthalic anhydride	LA-DEQ	6640	10185203
Pronamide (Kerb)	LA-DEQ	6650	10185203

Pyrene	LA-DEQ	6665	10185203
Pyridine	LA-DEQ	5095	10185203
Quinoline	LA-DEQ	6670	10185203
Safrole	LA-DEQ	6685	10185203
Sulfotepp	LA-DEQ	8155	10185203
Thionazin (Zinophos)	LA-DEQ	8235	10185203
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	LA-DEQ	8310	10185203

Method EPA 8310

Analyte	AB	Analyte ID	Method ID
Acenaphthene	LA-DEQ	5500	10187607
Acenaphthylene	LA-DEQ	5505	10187607
Anthracene	LA-DEQ	5555	10187607
Benzo(a)anthracene	LA-DEQ	5575	10187607
Benzo(a)pyrene	LA-DEQ	5580	10187607
Benzo(b)fluoranthene	LA-DEQ	5585	10187607
Benzo(g,h,i)perylene	LA-DEQ	5590	10187607
Benzo(k)fluoranthene	LA-DEQ	5600	10187607
Chrysene	LA-DEQ	5855	10187607
Dibenz(a,h) anthracene	LA-DEQ	5895	10187607
Fluoranthene	LA-DEQ	6265	10187607
Fluorene	LA-DEQ	6270	10187607
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10187607
Naphthalene	LA-DEQ	5005	10187607
Phenanthrene	LA-DEQ	6615	10187607
Pyrene	LA-DEQ	6665	10187607

Method EPA 8321

Analyte	AB	Analyte ID	Method ID
2,4,5-T	LA-DEQ	8655	10189205
2,4-D	LA-DEQ	8545	10189205
2,4-DB	LA-DEQ	8560	10189205
Dalapon	LA-DEQ	8555	10189205

Matrix: ***Non-Potable Water***

Dicamba	LA-DEQ	8595	10189205
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10189205
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10189205
MCPA	LA-DEQ	7775	10189205
MCPP	LA-DEQ	7780	10189205
Methiocarb (Mesurol)	LA-DEQ	7800	10189205
Silvex (2,4,5-TP)	LA-DEQ	8650	10189205

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	LA-DEQ	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	LA-DEQ	9303	10189807
2-Nitrotoluene	LA-DEQ	9507	10189807
3-Nitrotoluene	LA-DEQ	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	LA-DEQ	9306	10189807
4-Nitrotoluene	LA-DEQ	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	LA-DEQ	6415	10189807
Nitrobenzene	LA-DEQ	5015	10189807
Nitroglycerin	LA-DEQ	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	LA-DEQ	9522	10189807
Pentaerythritoltetranitrate (PETN)	LA-DEQ	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	LA-DEQ	9432	10189807

Method EPA 900.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	LA-DEQ	2830	10308200
Gross-beta	LA-DEQ	2840	10308200

Method EPA 9012

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Amenable cyanide	LA-DEQ	1510	10193405
Total cyanide	LA-DEQ	1645	10193405

Method EPA 9020

Analyte	**AB**	**Analyte ID**	**Method ID**
Total organic halides (TOX)	LA-DEQ	2045	10194000

Method EPA 903.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Total radium	LA-DEQ	2975	10309407

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	10198604

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10199209
Chloride	LA-DEQ	1575	10199209
Fluoride	LA-DEQ	1730	10199209
Nitrate as N	LA-DEQ	1810	10199209
Nitrate-nitrite	LA-DEQ	1820	10199209
Nitrite as N	LA-DEQ	1840	10199209
Sulfate	LA-DEQ	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	LA-DEQ	2040	10200201

Method EPA 9066

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10200609

Method EPA RSK 175

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Ethane	LA-DEQ	4747	10212905
Ethene	LA-DEQ	4752	10212905
Methane	LA-DEQ	4926	10212905
n-Propane	LA-DEQ	5029	10212905

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	LA-DEQ	1605	20223807

Method SM 2130 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	LA-DEQ	2055	20042200

Method SM 2310 B (4a)

Analyte	**AB**	**Analyte ID**	**Method ID**
Acidity, as CaCO3	LA-DEQ	1500	20002806

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	LA-DEQ	1505	20045005

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	20046008

Method SM 2340 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	20047001

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	20048004

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	LA-DEQ	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	LA-DEQ	1955	20049803

Matrix: ***Non-Potable Water***

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	LA-DEQ	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	LA-DEQ	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	20065809

Method SM 3500-Cr C

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	20066404

Method SM 3500-Fe B

Analyte	**AB**	**Analyte ID**	**Method ID**
Iron	LA-DEQ	1070	20068604

Method SM 4110 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	LA-DEQ	1575	20076408
Fluoride	LA-DEQ	1730	20076408
Nitrate as N	LA-DEQ	1810	20076408
Nitrate-nitrite	LA-DEQ	1820	20076408
Nitrite as N	LA-DEQ	1840	20076408
Sulfate	LA-DEQ	2000	20076408

Method SM 4500-Cl G

Analyte	**AB**	**Analyte ID**	**Method ID**
Total residual chlorine	LA-DEQ	1940	20020604

Method SM 4500-CN^- C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	LA-DEQ	1645	20020808

Method SM 4500-CN^- E

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Non-Potable Water***

Total cyanide	LA-DEQ	1645	20021209

Method SM 4500-CN^- G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	LA-DEQ	1510	20021607

Method SM 4500-F^- C

Analyte	**AB**	**Analyte ID**	**Method ID**
Fluoride	LA-DEQ	1730	20101808

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	20104603

Method SM 4500-NH3 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	LA-DEQ	1790	20023603

Method SM 4500-NH3 G

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	LA-DEQ	1515	20023205

Method SM 4500-NO3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate-nitrite	LA-DEQ	1820	20024402

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	LA-DEQ	1880	20025201

Method SM 4500-O G

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	LA-DEQ	1880	20025405

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	LA-DEQ	1870	20025803

Method SM 4500-$S2^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	LA-DEQ	2005	20125400

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Matrix: ***Non-Potable Water***

Method SM 4500-SO3^{-} B

Analyte	AB	Analyte ID	Method ID
Sulfite	LA-DEQ	2015	20026806

Method SM 5210 B

Analyte	AB	Analyte ID	Method ID
Biochemical oxygen demand (BOD)	LA-DEQ	1530	20027401
Carbonaceous BOD, CBOD	LA-DEQ	1555	20027401

Method SM 5220 D

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	LA-DEQ	1565	20027809

Method SM 5310 B

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	LA-DEQ	2040	20137206

Method SM 5540 C

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	LA-DEQ	2025	20144405

Method SM 6200 B

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	LA-DEQ	5160	20146605
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	20146605
1,1,2-Trichloroethane	LA-DEQ	5165	20146605
1,1-Dichloroethane	LA-DEQ	4630	20146605
1,1-Dichloroethylene	LA-DEQ	4640	20146605
1,2-Dichlorobenzene	LA-DEQ	4610	20146605
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	20146605
1,2-Dichloropropane	LA-DEQ	4655	20146605
1,3-Dichlorobenzene	LA-DEQ	4615	20146605
1,4-Dichlorobenzene	LA-DEQ	4620	20146605
2-Chloroethyl vinyl ether	LA-DEQ	4500	20146605
Benzene	LA-DEQ	4375	20146605
Bromodichloromethane	LA-DEQ	4395	20146605

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Matrix: ***Non-Potable Water***

Bromoform	LA-DEQ	4400	20146605
Chlorobenzene	LA-DEQ	4475	20146605
Chlorodibromomethane	LA-DEQ	4575	20146605
Chloroethane (Ethyl chloride)	LA-DEQ	4485	20146605
Chloroform	LA-DEQ	4505	20146605
cis-1,3-Dichloropropene	LA-DEQ	4680	20146605
Ethylbenzene	LA-DEQ	4765	20146605
Methyl bromide (Bromomethane)	LA-DEQ	4950	20146605
Methyl chloride (Chloromethane)	LA-DEQ	4960	20146605
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	20146605
Toluene	LA-DEQ	5140	20146605
trans-1,2-Dichloroethylene	LA-DEQ	4700	20146605
trans-1,3-Dichloropropylene	LA-DEQ	4685	20146605
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	20146605
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	20146605
Vinyl chloride	LA-DEQ	5235	20146605

Method SM 6640 B

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	LA-DEQ	8655	20031407
2,4-D	LA-DEQ	8545	20031407
Silvex (2,4,5-TP)	LA-DEQ	8650	20031407

Method SM 7500 Ra B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total radium	LA-DEQ	2975	20170007

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	LA-DEQ	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	LA-DEQ	1780	10116606

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	LA-DEQ	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	LA-DEQ	850	10119003

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10053200
Chloride	LA-DEQ	1575	10053200
Fluoride	LA-DEQ	1730	10053200
Nitrate as N	LA-DEQ	1810	10053200
Nitrate-nitrite	LA-DEQ	1820	10053200
Nitrite as N	LA-DEQ	1840	10053200
Orthophosphate as P	LA-DEQ	1870	10053200
Sulfate	LA-DEQ	2000	10053200

Method EPA 314.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Perchlorate	LA-DEQ	1895	10277006

Method EPA 350.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	LA-DEQ	1515	10063408

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10155201
Antimony	LA-DEQ	1005	10155201
Arsenic	LA-DEQ	1010	10155201
Barium	LA-DEQ	1015	10155201

Matrix: ***Solid & Chemical Materials***

Beryllium	LA-DEQ	1020	10155201
Boron	LA-DEQ	1025	10155201
Cadmium	LA-DEQ	1030	10155201
Calcium	LA-DEQ	1035	10155201
Chromium	LA-DEQ	1040	10155201
Cobalt	LA-DEQ	1050	10155201
Copper	LA-DEQ	1055	10155201
Iron	LA-DEQ	1070	10155201
Lead	LA-DEQ	1075	10155201
Lithium	LA-DEQ	1080	10155201
Magnesium	LA-DEQ	1085	10155201
Manganese	LA-DEQ	1090	10155201
Molybdenum	LA-DEQ	1100	10155201
Nickel	LA-DEQ	1105	10155201
Phosphorus	LA-DEQ	1910	10155201
Potassium	LA-DEQ	1125	10155201
Selenium	LA-DEQ	1140	10155201
Silver	LA-DEQ	1150	10155201
Sodium	LA-DEQ	1155	10155201
Strontium	LA-DEQ	1160	10155201
Thallium	LA-DEQ	1165	10155201
Tin	LA-DEQ	1175	10155201
Titanium	LA-DEQ	1180	10155201
Vanadium	LA-DEQ	1185	10155201
Zinc	LA-DEQ	1190	10155201

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10156419
Antimony	LA-DEQ	1005	10156419
Arsenic	LA-DEQ	1010	10156419

Matrix: ***Solid & Chemical Materials***

Barium	LA-DEQ	1015	10156419
Beryllium	LA-DEQ	1020	10156419
Boron	LA-DEQ	1025	10156419
Cadmium	LA-DEQ	1030	10156419
Calcium	LA-DEQ	1035	10156419
Chromium	LA-DEQ	1040	10156419
Cobalt	LA-DEQ	1050	10156419
Copper	LA-DEQ	1055	10156419
Iron	LA-DEQ	1070	10156419
Lead	LA-DEQ	1075	10156419
Magnesium	LA-DEQ	1085	10156419
Manganese	LA-DEQ	1090	10156419
Molybdenum	LA-DEQ	1100	10156419
Nickel	LA-DEQ	1105	10156419
Potassium	LA-DEQ	1125	10156419
Selenium	LA-DEQ	1140	10156419
Silver	LA-DEQ	1150	10156419
Sodium	LA-DEQ	1155	10156419
Strontium	LA-DEQ	1160	10156419
Thallium	LA-DEQ	1165	10156419
Tin	LA-DEQ	1175	10156419
Titanium	LA-DEQ	1180	10156419
Vanadium	LA-DEQ	1185	10156419
Zinc	LA-DEQ	1190	10156419

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10162206

Method EPA 7199

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10163005

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Matrix: ***Solid & Chemical Materials***

Method EPA 7471

Analyte	AB	Analyte ID	Method ID
Mercury	LA-DEQ	1095	10166004

Method EPA 8015

Analyte	AB	Analyte ID	Method ID
Diesel range organics (DRO)	LA-DEQ	9369	10173203
Ethanol	LA-DEQ	4750	10173203
Ethylene glycol	LA-DEQ	4785	10173203
Gasoline range organics (GRO)	LA-DEQ	9408	10173203
Methanol	LA-DEQ	4930	10173203
Propylene Glycol	LA-DEQ	6657	10173203

Method EPA 8021

Analyte	AB	Analyte ID	Method ID
Benzene	LA-DEQ	4375	10174400
Ethylbenzene	LA-DEQ	4765	10174400
m+p-xylene	LA-DEQ	5240	10174400
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10174400
o-Xylene	LA-DEQ	5250	10174400
Toluene	LA-DEQ	5140	10174400
Xylene (total)	LA-DEQ	5260	10174400

Method EPA 8081

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	LA-DEQ	7355	10178402
4,4'-DDE	LA-DEQ	7360	10178402
4,4'-DDT	LA-DEQ	7365	10178402
Aldrin	LA-DEQ	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10178402
alpha-Chlordane	LA-DEQ	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10178402
Chlordane (tech.)	LA-DEQ	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10178402

Matrix: ***Solid & Chemical Materials***

Dieldrin	LA-DEQ	7470	10178402
Endosulfan I	LA-DEQ	7510	10178402
Endosulfan II	LA-DEQ	7515	10178402
Endosulfan sulfate	LA-DEQ	7520	10178402
Endrin	LA-DEQ	7540	10178402
Endrin aldehyde	LA-DEQ	7530	10178402
Endrin ketone	LA-DEQ	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10178402
gamma-Chlordane	LA-DEQ	7245	10178402
Heptachlor	LA-DEQ	7685	10178402
Heptachlor epoxide	LA-DEQ	7690	10178402
Hexachlorobenzene	LA-DEQ	6275	10178402
Methoxychlor	LA-DEQ	7810	10178402
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10178402

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10179007
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10179007
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10179007
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10179007
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10179007
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10179007
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10179007

Method EPA 8141

Analyte	**AB**	**Analyte ID**	**Method ID**
Azinphos-methyl (Guthion)	LA-DEQ	7075	10181803
Bolstar (Sulprofos)	LA-DEQ	7125	10181803
Chlorpyrifos (Dursban)	LA-DEQ	7300	10181803
Coumaphos	LA-DEQ	7315	10181803
Demeton	LA-DEQ	7390	10181803
Demeton-o	LA-DEQ	7395	10181803

Matrix: ***Solid & Chemical Materials***

Demeton-s	LA-DEQ	7385	10181803
Diazinon	LA-DEQ	7410	10181803
Dichlorovos (DDVP, Dichlorvos)	LA-DEQ	8610	10181803
Dimethoate	LA-DEQ	7475	10181803
Disulfoton	LA-DEQ	8625	10181803
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	LA-DEQ	7550	10181803
Ethoprop	LA-DEQ	7570	10181803
Fensulfothion	LA-DEQ	7600	10181803
Fenthion	LA-DEQ	7605	10181803
Malathion	LA-DEQ	7770	10181803
Merphos	LA-DEQ	7785	10181803
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10181803
Mevinphos	LA-DEQ	7850	10181803
Naled	LA-DEQ	7905	10181803
Parathion, ethyl	LA-DEQ	7955	10182000
Phorate	LA-DEQ	7985	10181803
Ronnel	LA-DEQ	8110	10181803
Sulfotepp	LA-DEQ	8155	10181803
Tetrachlorvinphos (Stirophos, Gardona)	LA-DEQ	8197	10181803
Tetraethyl pyrophosphate (TEPP)	LA-DEQ	8210	10181803
Tokuthion (Prothiophos)	LA-DEQ	8245	10181803
Trichloronate	LA-DEQ	8275	10181803

Method EPA 8151

Analyte	AB	Analyte ID	Method ID
2,4,5-T	LA-DEQ	8655	10183003
2,4-D	LA-DEQ	8545	10183003
2,4-DB	LA-DEQ	8560	10183003
Dalapon	LA-DEQ	8555	10183003
Dicamba	LA-DEQ	8595	10183003
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10183003

Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10183003
MCPA	LA-DEQ	7775	10183003
MCPP	LA-DEQ	7780	10183003
Pentachlorophenol	LA-DEQ	6605	10183003
Silvex (2,4,5-TP)	LA-DEQ	8650	10183003

Method EPA 8260

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1,2-Tetrachloroethane	LA-DEQ	5105	10184404
1,1,1-Trichloroethane	LA-DEQ	5160	10184404
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10184404
1,1,2-Trichloroethane	LA-DEQ	5165	10184404
1,1-Dichloroethane	LA-DEQ	4630	10184404
1,1-Dichloroethylene	LA-DEQ	4640	10184404
1,1-Dichloropropene	LA-DEQ	4670	10184404
1,2,3-Trichlorobenzene	LA-DEQ	5150	10184404
1,2,3-Trichloropropane	LA-DEQ	5180	10184404
1,2,4-Trichlorobenzene	LA-DEQ	5155	10184404
1,2,4-Trimethylbenzene	LA-DEQ	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10184404
1,2-Dichlorobenzene	LA-DEQ	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10184404
1,2-Dichloropropane	LA-DEQ	4655	10184404
1,3,5-Trimethylbenzene	LA-DEQ	5215	10184404
1,3-Dichlorobenzene	LA-DEQ	4615	10184404
1,3-Dichloropropane	LA-DEQ	4660	10184404
1,4-Dichlorobenzene	LA-DEQ	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10184404
2,2-Dichloropropane	LA-DEQ	4665	10184404

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Matrix: ***Solid & Chemical Materials***

2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10184404
2-Chloroethyl vinyl ether	LA-DEQ	4500	10184404
2-Chlorotoluene	LA-DEQ	4535	10184404
2-Hexanone (MBK)	LA-DEQ	4860	10184404
2-Nitropropane	LA-DEQ	5020	10184404
4-Chlorotoluene	LA-DEQ	4540	10184404
4-Isopropyltoluene (p-Cymene)	LA-DEQ	4915	10184404
4-Methyl-2-pentanone (MIBK)	LA-DEQ	4995	10184404
Acetone (2-Propanone)	LA-DEQ	4315	10184404
Acetonitrile	LA-DEQ	4320	10184404
Acrolein (Propenal)	LA-DEQ	4325	10184404
Acrylonitrile	LA-DEQ	4340	10184404
Allyl chloride (3-Chloropropene)	LA-DEQ	4355	10184404
Benzene	LA-DEQ	4375	10184404
Bromobenzene	LA-DEQ	4385	10184404
Bromochloromethane	LA-DEQ	4390	10184404
Bromodichloromethane	LA-DEQ	4395	10184404
Bromoform	LA-DEQ	4400	10184404
Carbon disulfide	LA-DEQ	4450	10184404
Carbon tetrachloride	LA-DEQ	4455	10184404
Chlorobenzene	LA-DEQ	4475	10184404
Chlorodibromomethane	LA-DEQ	4575	10184404
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10184404
Chloroform	LA-DEQ	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	LA-DEQ	4525	10184404
cis-1,2-Dichloroethylene	LA-DEQ	4645	10184404
cis-1,3-Dichloropropene	LA-DEQ	4680	10184404
cis-1,4-Dichloro-2-butene	LA-DEQ	4600	10184404
Dibromomethane (Methylene bromide)	LA-DEQ	4595	10184404
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10184404

Certificate: **T104704245-20-19**

Environmental Science Corp. dba Pace Analytical National Center for Testing & Innovation

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Issue Date: **12/15/2020**

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Matrix: ***Solid & Chemical Materials***

Diethyl ether	LA-DEQ	4725	10184404
Ethanol	LA-DEQ	4750	10184404
Ethyl acetate	LA-DEQ	4755	10184404
Ethyl methacrylate	LA-DEQ	4810	10184404
Ethylbenzene	LA-DEQ	4765	10184404
Hexachlorobutadiene	LA-DEQ	4835	10184404
Hexachloroethane	LA-DEQ	4840	10184404
Iodomethane (Methyl iodide)	LA-DEQ	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	LA-DEQ	4875	10184404
Isopropylbenzene (Cumene)	LA-DEQ	4900	10184404
m+p-xylene	LA-DEQ	5240	10184404
Methacrylonitrile	LA-DEQ	4925	10184404
Methyl acetate	LA-DEQ	4940	10184404
Methyl acrylate	LA-DEQ	4945	10184404
Methyl bromide (Bromomethane)	LA-DEQ	4950	10184404
Methyl chloride (Chloromethane)	LA-DEQ	4960	10184404
Methyl methacrylate	LA-DEQ	4990	10184404
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10184404
Methylcyclohexane	LA-DEQ	4965	10184404
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10184404
Naphthalene	LA-DEQ	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	LA-DEQ	4425	10184404
n-Butylbenzene	LA-DEQ	4435	10184404
n-Propylbenzene	LA-DEQ	5090	10184404
o-Xylene	LA-DEQ	5250	10184404
Pentachloroethane	LA-DEQ	5035	10184404
Propionitrile (Ethyl cyanide)	LA-DEQ	5080	10184404
sec-Butylbenzene	LA-DEQ	4440	10184404
Styrene	LA-DEQ	5100	10184404
tert-Butyl alcohol	LA-DEQ	4420	10184404

Matrix: ***Solid & Chemical Materials***

tert-Butylbenzene	LA-DEQ	4445	10184404
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10184404
Toluene	LA-DEQ	5140	10184404
trans-1,2-Dichloroethylene	LA-DEQ	4700	10184404
trans-1,3-Dichloropropylene	LA-DEQ	4685	10184404
trans-1,4-Dichloro-2-butene	LA-DEQ	4605	10184404
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10184404
Vinyl acetate	LA-DEQ	5225	10184404
Vinyl chloride	LA-DEQ	5235	10184404
Xylene (total)	LA-DEQ	5260	10184404

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10185203
1,2,4-Trichlorobenzene	LA-DEQ	5155	10185203
1,2-Dichlorobenzene	LA-DEQ	4610	10185203
1,2-Diphenylhydrazine	LA-DEQ	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10185203
1,3-Dichlorobenzene	LA-DEQ	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10185203
1,4-Dichlorobenzene	LA-DEQ	4620	10185203
1,4-Dinitrobenzene	LA-DEQ	6165	10185203
1,4-Naphthoquinone	LA-DEQ	6420	10185203
1,4-Phenylenediamine	LA-DEQ	6630	10185203
1-Chloronaphthalene	LA-DEQ	5790	10185203
1-Naphthylamine	LA-DEQ	6425	10185203
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10185203
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10185203
2,4,5-Trichlorophenol	LA-DEQ	6835	10185203
2,4,6-Trichlorophenol	LA-DEQ	6840	10185203

Matrix: ***Solid & Chemical Materials***

2,4-Dichlorophenol	LA-DEQ	6000	10185203
2,4-Dimethylphenol	LA-DEQ	6130	10185203
2,4-Dinitrophenol	LA-DEQ	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10185203
2,6-Dichlorophenol	LA-DEQ	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10185203
2-Acetylaminofluorene	LA-DEQ	5515	10185203
2-Chloronaphthalene	LA-DEQ	5795	10185203
2-Chlorophenol	LA-DEQ	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10185203
2-Methylaniline (o-Toluidine)	LA-DEQ	5145	10185203
2-Methylnaphthalene	LA-DEQ	6385	10185203
2-Methylphenol (o-Cresol)	LA-DEQ	6400	10185203
2-Naphthylamine	LA-DEQ	6430	10185203
2-Nitroaniline	LA-DEQ	6460	10185203
2-Nitrophenol	LA-DEQ	6490	10185203
2-Picoline (2-Methylpyridine)	LA-DEQ	5050	10185203
3,3'-Dichlorobenzidine	LA-DEQ	5945	10185203
3,3'-Dimethylbenzidine	LA-DEQ	6120	10185203
3-Methylcholanthrene	LA-DEQ	6355	10185203
3-Methylphenol (m-Cresol)	LA-DEQ	6405	10185203
3-Nitroaniline	LA-DEQ	6465	10185203
4,4'-Methylenebis(2-chloroaniline)	LA-DEQ	6365	10185203
4-Aminobiphenyl	LA-DEQ	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10185203
4-Chloro-3-methylphenol	LA-DEQ	5700	10185203
4-Chloroaniline	LA-DEQ	5745	10185203
4-Chlorophenyl phenylether	LA-DEQ	5825	10185203
4-Dimethyl aminoazobenzene	LA-DEQ	6105	10185203
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10185203

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Matrix: ***Solid & Chemical Materials***

4-Nitroaniline	LA-DEQ	6470	10185203
4-Nitrophenol	LA-DEQ	6500	10185203
4-Nitroquinoline-1-oxide	LA-DEQ	6510	10185203
5-Nitro-o-toluidine	LA-DEQ	6570	10185203
7,12-Dimethylbenz(a) anthracene	LA-DEQ	6115	10185203
a-a-Dimethylphenethylamine	LA-DEQ	6125	10185203
Acenaphthene	LA-DEQ	5500	10185203
Acenaphthylene	LA-DEQ	5505	10185203
Acetophenone	LA-DEQ	5510	10185203
Aniline	LA-DEQ	5545	10185203
Anthracene	LA-DEQ	5555	10185203
Aramite	LA-DEQ	5560	10185203
Atrazine	LA-DEQ	7065	10185203
Benzenethiol (Thiophenol)	LA-DEQ	6750	10185203
Benzidine	LA-DEQ	5595	10185203
Benzo(a)anthracene	LA-DEQ	5575	10185203
Benzo(a)pyrene	LA-DEQ	5580	10185203
Benzo(b)fluoranthene	LA-DEQ	5585	10185203
Benzo(g,h,i)perylene	LA-DEQ	5590	10185203
Benzo(k)fluoranthene	LA-DEQ	5600	10185203
Benzoic acid	LA-DEQ	5610	10185203
Benzyl alcohol	LA-DEQ	5630	10185203
Biphenyl	LA-DEQ	5640	10185203
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10185203
bis(2-Chloroethyl) ether	LA-DEQ	5765	10185203
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10185203
Butyl benzyl phthalate	LA-DEQ	5670	10185203
Caprolactam	LA-DEQ	7180	10185203
Carbazole	LA-DEQ	5680	10185203
Chlorobenzilate	LA-DEQ	7260	10185203

Matrix: ***Solid & Chemical Materials***

Chrysene	LA-DEQ	5855	10185203
Diallate	LA-DEQ	7405	10185203
Dibenz(a,h) anthracene	LA-DEQ	5895	10185203
Dibenz(a,j) acridine	LA-DEQ	5900	10185203
Dibenzo(a,e) pyrene	LA-DEQ	5890	10185203
Dibenzofuran	LA-DEQ	5905	10185203
Diethyl phthalate	LA-DEQ	6070	10185203
Dimethoate	LA-DEQ	7475	10185203
Dimethyl phthalate	LA-DEQ	6135	10185203
Di-n-butyl phthalate	LA-DEQ	5925	10185203
Di-n-octyl phthalate	LA-DEQ	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10185203
Diphenylamine	LA-DEQ	6205	10185203
Disulfoton	LA-DEQ	8625	10185203
Ethyl methanesulfonate	LA-DEQ	6260	10185203
Famphur	LA-DEQ	7580	10185203
Fluoranthene	LA-DEQ	6265	10185203
Fluorene	LA-DEQ	6270	10185203
Hexachlorobenzene	LA-DEQ	6275	10185203
Hexachlorobutadiene	LA-DEQ	4835	10185203
Hexachlorocyclopentadiene	LA-DEQ	6285	10185203
Hexachloroethane	LA-DEQ	4840	10185203
Hexachlorophene	LA-DEQ	6290	10185203
Hexachloropropene	LA-DEQ	6295	10185203
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10185203
Isodrin	LA-DEQ	7725	10185203
Isophorone	LA-DEQ	6320	10185203
Isosafrole	LA-DEQ	6325	10185203
Kepone	LA-DEQ	7740	10185203
Methapyrilene	LA-DEQ	6345	10185203

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Matrix: ***Solid & Chemical Materials***

Methyl methanesulfonate	LA-DEQ	6375	10185203
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10185203
Methylphenols, total	LA-DEQ	10313	10185203
Naphthalene	LA-DEQ	5005	10185203
Nitrobenzene	LA-DEQ	5015	10185203
n-Nitrosodiethylamine	LA-DEQ	6525	10185203
n-Nitrosodimethylamine	LA-DEQ	6530	10185203
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10185203
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10185203
n-Nitrosodiphenylamine	LA-DEQ	6535	10185203
n-Nitrosomethylethylamine	LA-DEQ	6550	10185203
n-Nitrosomorpholine	LA-DEQ	6555	10185203
n-Nitrosopiperidine	LA-DEQ	6560	10185203
n-Nitrosopyrrolidine	LA-DEQ	6565	10185203
o,o,o-Triethyl phosphorothioate	LA-DEQ	8290	10185203
Parathion, ethyl	LA-DEQ	7955	10185203
Pentachlorobenzene	LA-DEQ	6590	10185203
Pentachloronitrobenzene (PCNB)	LA-DEQ	6600	10185203
Pentachlorophenol	LA-DEQ	6605	10185203
Phenacetin	LA-DEQ	6610	10185203
Phenanthrene	LA-DEQ	6615	10185203
Phenol	LA-DEQ	6625	10185203
Phorate	LA-DEQ	7985	10185203
Phthalic anhydride	LA-DEQ	6640	10185203
Pronamide (Kerb)	LA-DEQ	6650	10185203
Pyrene	LA-DEQ	6665	10185203
Pyridine	LA-DEQ	5095	10185203
Quinoline	LA-DEQ	6670	10185203
Safrole	LA-DEQ	6685	10185203
Sulfotepp	LA-DEQ	8155	10185203

Matrix: ***Solid & Chemical Materials***

Thionazin (Zinophos)	LA-DEQ	8235	10185203
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	LA-DEQ	8310	10185203

Method EPA 8310

Analyte	**AB**	**Analyte ID**	**Method ID**
Acenaphthene	LA-DEQ	5500	10187607
Acenaphthylene	LA-DEQ	5505	10187607
Anthracene	LA-DEQ	5555	10187607
Benzo(a)anthracene	LA-DEQ	5575	10187607
Benzo(a)pyrene	LA-DEQ	5580	10187607
Benzo(b)fluoranthene	LA-DEQ	5585	10187607
Benzo(g,h,i)perylene	LA-DEQ	5590	10187607
Benzo(k)fluoranthene	LA-DEQ	5600	10187607
Chrysene	LA-DEQ	5855	10187607
Dibenz(a,h) anthracene	LA-DEQ	5895	10187607
Fluoranthene	LA-DEQ	6265	10187607
Fluorene	LA-DEQ	6270	10187607
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10187607
Naphthalene	LA-DEQ	5005	10187607
Phenanthrene	LA-DEQ	6615	10187607
Pyrene	LA-DEQ	6665	10187607

Method EPA 8321

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	LA-DEQ	8655	10189205
2,4-D	LA-DEQ	8545	10189205
2,4-DB	LA-DEQ	8560	10189205
Dalapon	LA-DEQ	8555	10189205
Dicamba	LA-DEQ	8595	10189205
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10189205
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10189205
MCPA	LA-DEQ	7775	10189205
MCPP	LA-DEQ	7780	10189205

Matrix: ***Solid & Chemical Materials***

Silvex (2,4,5-TP)	LA-DEQ	8650	10189205

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	LA-DEQ	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	LA-DEQ	9303	10189807
2-Nitrotoluene	LA-DEQ	9507	10189807
3-Nitrotoluene	LA-DEQ	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	LA-DEQ	9306	10189807
4-Nitrotoluene	LA-DEQ	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	LA-DEQ	6415	10189807
Nitrobenzene	LA-DEQ	5015	10189807
Nitroglycerin	LA-DEQ	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	LA-DEQ	9522	10189807
Pentaerythritoltetranitrate (PETN)	LA-DEQ	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	LA-DEQ	9432	10189807

Method EPA 9012

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	LA-DEQ	1510	10193405
Total cyanide	LA-DEQ	1645	10193405

Method EPA 9023

Analyte	**AB**	**Analyte ID**	**Method ID**
Extractable organics halides (EOX)	LA-DEQ	1720	10195003

Method EPA 9034

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	LA-DEQ	2005	10196006

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Solid & Chemical Materials***

pH	LA-DEQ	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10199209
Chloride	LA-DEQ	1575	10199209
Fluoride	LA-DEQ	1730	10199209
Nitrate as N	LA-DEQ	1810	10199209
Nitrate-nitrite	LA-DEQ	1820	10199209
Nitrite as N	LA-DEQ	1840	10199209
Orthophosphate as P	LA-DEQ	1870	10199209
Sulfate	LA-DEQ	2000	10199209

Method EPA 906.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Tritium	LA-DEQ	3030	10310200

Method EPA 9066

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10200609

Method EPA 9071

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	LA-DEQ	1803	10201204
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	LA-DEQ	10220	10201204

Method EPA 9076

Analyte	**AB**	**Analyte ID**	**Method ID**
Total chlorine	LA-DEQ	1585	10202401

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	LA-DEQ	10312	10204009

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704245-20-19**
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Matrix: ***Solid & Chemical Materials***

Method EPA 9310

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	LA-DEQ	2830	10310802
Gross-beta	LA-DEQ	2840	10310802

Method HASL-300 Ga-01-R

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross gamma	LA-DEQ	2855	90000207

Method HASL-300 U-02-RC

Analyte	**AB**	**Analyte ID**	**Method ID**
Uranium	LA-DEQ	3035	90011204

Method SM 2540 G

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	LA-DEQ	1950	20005203

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	LA-DEQ	2050	90019208

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

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12065 Lebanon Road
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in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: **T104704245-19-16**
Effective Date: **11/1/2019**
Expiration Date: **10/31/2020**

Executive Director Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704245-19-16
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Matrix: ***Air & Emissions***

Method EPA TO-15

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	LA-DEQ	5160	10248803
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10248803
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10248803
1,1,2-Trichloroethane	LA-DEQ	5165	10248803
1,1-Dichloroethane	LA-DEQ	4630	10248803
1,1-Dichloroethylene	LA-DEQ	4640	10248803
1,2,3-Trimethylbenzene	LA-DEQ	5182	10248803
1,2,4-Trichlorobenzene	LA-DEQ	5155	10248803
1,2,4-Trimethylbenzene	LA-DEQ	5210	10248803
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10248803
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	LA-DEQ	4695	10248803
1,2-Dichlorobenzene	LA-DEQ	4610	10248803
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10248803
1,2-Dichloropropane	LA-DEQ	4655	10248803
1,3,5-Trimethylbenzene	LA-DEQ	5215	10248803
1,3-Butadiene	LA-DEQ	9318	10248803
1,3-Dichlorobenzene	LA-DEQ	4615	10248803
1,4-Dichlorobenzene	LA-DEQ	4620	10248803
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10248803
1-Propene (Propylene)	LA-DEQ	4836	10248803
2,2,4-Trimethylpentane (Isooctane)	LA-DEQ	5220	10248803
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10248803
4-Ethyltoluene	LA-DEQ	4542	10248803
Acetaldehyde	LA-DEQ	4300	10248803
Acetonitrile	LA-DEQ	4320	10248803
Acrylonitrile	LA-DEQ	4340	10248803
Benzene	LA-DEQ	4375	10248803
Benzyl chloride	LA-DEQ	5635	10248803

Texas Commission on Environmental Quality

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Matrix: ***Air & Emissions***

Bromodichloromethane	LA-DEQ	4395	10248803
Bromoform	LA-DEQ	4400	10248803
Carbon tetrachloride	LA-DEQ	4455	10248803
Chlorobenzene	LA-DEQ	4475	10248803
Chlorodibromomethane	LA-DEQ	4575	10248803
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10248803
Chloroform	LA-DEQ	4505	10248803
cis-1,2-Dichloroethylene	LA-DEQ	4645	10248803
cis-1,3-Dichloropropene	LA-DEQ	4680	10248803
Cyclohexane	LA-DEQ	4555	10248803
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10248803
Ethylbenzene	LA-DEQ	4765	10248803
Hexachlorobutadiene	LA-DEQ	4835	10248803
Isopropylbenzene (Cumene)	LA-DEQ	4900	10248803
m+p-xylene	LA-DEQ	5240	10248803
Methanol	LA-DEQ	4930	10248803
Methyl bromide (Bromomethane)	LA-DEQ	4950	10248803
Methyl chloride (Chloromethane)	LA-DEQ	4960	10248803
Methyl isobutyl ketone (Hexone) (MIBK)	LA-DEQ	4985	10248803
Methyl methacrylate	LA-DEQ	4990	10248803
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10248803
Methylcyclohexane	LA-DEQ	4965	10248803
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10248803
n-Butane	LA-DEQ	5007	10248803
n-Heptane	LA-DEQ	4825	10248803
n-Hexane	LA-DEQ	4850	10248803
n-Nonane	LA-DEQ	5026	10248803
n-Pentane	LA-DEQ	5028	10248803
n-Propylbenzene	LA-DEQ	5090	10248803
o-Xylene	LA-DEQ	5250	10248803

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Matrix: ***Air & Emissions***

Styrene	LA-DEQ	5100	10248803
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10248803
Toluene	LA-DEQ	5140	10248803
trans-1,2-Dichloroethylene	LA-DEQ	4700	10248803
trans-1,3-Dichloropropylene	LA-DEQ	4685	10248803
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10248803
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10248803
Vinyl acetate	LA-DEQ	5225	10248803
Vinyl bromide (Bromoethene)	LA-DEQ	5230	10248803
Vinyl chloride	LA-DEQ	5235	10248803
Xylene (total)	LA-DEQ	5260	10248803

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Matrix: ***Drinking Water***

Method ASTM D5174

Analyte	AB	Analyte ID	Method ID
Uranium	LA-DHH	3035	30031608

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DHH	1000	10013806
Barium	LA-DHH	1015	10013806
Beryllium	LA-DHH	1020	10013806
Boron	LA-DHH	1025	10013806
Cadmium	LA-DHH	1030	10013806
Chromium	LA-DHH	1040	10013806
Copper	LA-DHH	1055	10013806
Iron	LA-DHH	1070	10013806
Magnesium	LA-DHH	1085	10013806
Manganese	LA-DHH	1090	10013806
Molybdenum	LA-DHH	1100	10013806
Nickel	LA-DHH	1105	10013806
Potassium	LA-DHH	1125	10013806
Silica as SiO2	LA-DHH	1990	10013806
Silver	LA-DHH	1150	10013806
Sodium	LA-DHH	1155	10013806
Vanadium	LA-DHH	1185	10013806
Zinc	LA-DHH	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DHH	1000	10014605
Antimony	LA-DHH	1005	10014605
Arsenic	LA-DHH	1010	10014605
Barium	LA-DHH	1015	10014605
Beryllium	LA-DHH	1020	10014605
Cadmium	LA-DHH	1030	10014605

Matrix: *Drinking Water*

Chromium	LA-DHH	1040	10014605
Copper	LA-DHH	1055	10014605
Lead	LA-DHH	1075	10014605
Manganese	LA-DHH	1090	10014605
Nickel	LA-DHH	1105	10014605
Selenium	LA-DHH	1140	10014605
Silver	LA-DHH	1150	10014605
Thallium	LA-DHH	1165	10014605
Uranium	LA-DHH	3035	10014605
Zinc	LA-DHH	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DHH	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DHH	1540	10053200
Chloride	LA-DHH	1575	10053200
Fluoride	LA-DHH	1730	10053200
Nitrate as N	LA-DHH	1810	10053200
Nitrite as N	LA-DHH	1840	10053200
Sulfate	LA-DHH	2000	10053200

Method EPA 314.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Perchlorate	LA-DHH	1895	10277006

Method EPA 335.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	LA-DHH	1645	10061402

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	LA-DHH	1810	10067604
Nitrite as N	LA-DHH	1840	10067604

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Matrix: ***Drinking Water***

Method EPA 504.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2-Dibromo-3-chloropropane (DBCP)	LA-DHH	4570	10082801
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DHH	4585	10082801

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	LA-DHH	5160	10088809
1,1,2-Trichloroethane	LA-DHH	5165	10088809
1,1-Dichloroethylene	LA-DHH	4640	10088809
1,2,4-Trichlorobenzene	LA-DHH	5155	10088809
1,2-Dichlorobenzene	LA-DHH	4610	10088809
1,2-Dichloroethane (Ethylene dichloride)	LA-DHH	4635	10088809
1,2-Dichloropropane	LA-DHH	4655	10088809
1,4-Dichlorobenzene	LA-DHH	4620	10088809
Benzene	LA-DHH	4375	10088809
Carbon tetrachloride	LA-DHH	4455	10088809
Chlorobenzene	LA-DHH	4475	10088809
cis-1,2-Dichloroethylene	LA-DHH	4645	10088809
Ethylbenzene	LA-DHH	4765	10088809
Methylene chloride (Dichloromethane)	LA-DHH	4975	10088809
Styrene	LA-DHH	5100	10088809
Tetrachloroethylene (Perchloroethylene)	LA-DHH	5115	10088809
Toluene	LA-DHH	5140	10088809
Total trihalomethanes	LA-DHH	5205	10088809
trans-1,2-Dichloroethylene	LA-DHH	4700	10088809
Trichloroethene (Trichloroethylene)	LA-DHH	5170	10088809
Vinyl chloride	LA-DHH	5235	10088809
Xylene (total)	LA-DHH	5260	10088809

Method EPA 552.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Total haloacetic acids	LA-DHH	9414	10095804

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Matrix: ***Drinking Water***

Method EPA 900.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	LA-DHH	2830	10308200
Gross-beta	LA-DHH	2840	10308200

Method EPA 901.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross gamma	LA-DHH	2855	10308608

Method EPA 903.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-226	LA-DHH	2965	10309407

Method EPA 904.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Radium-228	LA-DHH	2970	10309805

Method EPA 905.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Strontium-89	LA-DHH	2995	10310006
Strontium-90	LA-DHH	3005	10310006

Method EPA 906.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Tritium	LA-DHH	3030	10310200

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DHH	1610	20048004

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	LA-DHH	1955	20049803

Method SM 4110 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Fluoride	LA-DHH	1730	20076408
Nitrate as N	LA-DHH	1810	20076408
Nitrite as N	LA-DHH	1840	20076408

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Matrix: ***Drinking Water***

Method SM 4500-CN$^-$ C,E

Analyte	AB	Analyte ID	Method ID
Total cyanide	LA-DHH	1645	20092404

Method SM 4500-CN$^-$ C,G

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	LA-DHH	1510	20093203

Method SM 7500-Ra B

Analyte	AB	Analyte ID	Method ID
Radium-226	LA-DHH	2965	20170007

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Matrix: ***Non-Potable Water***

Method EPA 1000.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Chronic toxicity	LA-DEQ	3325	10252605

Method EPA 1002.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Chronic toxicity	LA-DEQ	3325	10253006

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	LA-DEQ	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	10006403

Method EPA 130.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	10006801

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	LA-DEQ	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	LA-DEQ	850	10119003

Method EPA 150.1

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	10008409

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	LA-DEQ	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	LA-DEQ	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	LA-DEQ	10220	10127807

Matrix: ***Non-Potable Water***

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	LA-DEQ	2055	10011606

Method EPA 200.7

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10013806
Antimony	LA-DEQ	1005	10013806
Arsenic	LA-DEQ	1010	10013806
Barium	LA-DEQ	1015	10013806
Beryllium	LA-DEQ	1020	10013806
Boron	LA-DEQ	1025	10013806
Cadmium	LA-DEQ	1030	10013806
Calcium	LA-DEQ	1035	10013806
Chromium	LA-DEQ	1040	10013806
Cobalt	LA-DEQ	1050	10013806
Copper	LA-DEQ	1055	10013806
Iron	LA-DEQ	1070	10013806
Lead	LA-DEQ	1075	10013806
Lithium	LA-DEQ	1080	10013806
Magnesium	LA-DEQ	1085	10013806
Manganese	LA-DEQ	1090	10013806
Molybdenum	LA-DEQ	1100	10013806
Nickel	LA-DEQ	1105	10013806
Phosphorus	LA-DEQ	1910	10013806
Potassium	LA-DEQ	1125	10013806
Selenium	LA-DEQ	1140	10013806
Silica as SiO2	LA-DEQ	1990	10013806
Silver	LA-DEQ	1150	10013806
Sodium	LA-DEQ	1155	10013806
Strontium	LA-DEQ	1160	10013806
Thallium	LA-DEQ	1165	10013806

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Matrix: ***Non-Potable Water***

Tin	LA-DEQ	1175	10013806
Titanium	LA-DEQ	1180	10013806
Vanadium	LA-DEQ	1185	10013806
Zinc	LA-DEQ	1190	10013806

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10014605
Antimony	LA-DEQ	1005	10014605
Arsenic	LA-DEQ	1010	10014605
Barium	LA-DEQ	1015	10014605
Beryllium	LA-DEQ	1020	10014605
Boron	LA-DEQ	1025	10014605
Boron	LA-DEQ	1025	10014605
Cadmium	LA-DEQ	1030	10014605
Calcium	LA-DEQ	1035	10014605
Chromium	LA-DEQ	1040	10014605
Cobalt	LA-DEQ	1050	10014605
Copper	LA-DEQ	1055	10014605
Iron	LA-DEQ	1070	10014605
Lead	LA-DEQ	1075	10014605
Magnesium	LA-DEQ	1085	10014605
Manganese	LA-DEQ	1090	10014605
Molybdenum	LA-DEQ	1100	10014605
Nickel	LA-DEQ	1105	10014605
Potassium	LA-DEQ	1125	10014605
Selenium	LA-DEQ	1140	10014605
Silver	LA-DEQ	1150	10014605
Sodium	LA-DEQ	1155	10014605
Strontium	LA-DEQ	1160	10014605
Thallium	LA-DEQ	1165	10014605

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Matrix: ***Non-Potable Water***

Thorium	LA-DEQ	1170	10014605
Tin	LA-DEQ	1175	10014605
Titanium	LA-DEQ	1180	10014605
Uranium	LA-DEQ	3035	10014605
Vanadium	LA-DEQ	1185	10014605
Zinc	LA-DEQ	1190	10014605

Method EPA 2000.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Acute toxicity	LA-DEQ	3300	10264809

Method EPA 2002.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Acute toxicity	LA-DEQ	3300	10214901

Method EPA 218.6

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10028009

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DEQ	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10053200
Chloride	LA-DEQ	1575	10053200
Fluoride	LA-DEQ	1730	10053200
Nitrate as N	LA-DEQ	1810	10053200
Nitrate-nitrite	LA-DEQ	1820	10053200
Nitrite as N	LA-DEQ	1840	10053200
Sulfate	LA-DEQ	2000	10053200

Method EPA 310.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	LA-DEQ	1505	10055206

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Matrix: ***Non-Potable Water***

Method EPA 314.0

Analyte	AB	Analyte ID	Method ID
Perchlorate	LA-DEQ	1895	10277006

Method EPA 335.4

Analyte	AB	Analyte ID	Method ID
Total cyanide	LA-DEQ	1645	10061402

Method EPA 350.1

Analyte	AB	Analyte ID	Method ID
Ammonia as N	LA-DEQ	1515	10063408

Method EPA 351.2

Analyte	AB	Analyte ID	Method ID
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	LA-DEQ	1790	10065404

Method EPA 353.2

Analyte	AB	Analyte ID	Method ID
Nitrate-nitrite	LA-DEQ	1820	10067400

Method EPA 365.1

Analyte	AB	Analyte ID	Method ID
Phosphorus	LA-DEQ	1910	10070005

Method EPA 365.2

Analyte	AB	Analyte ID	Method ID
Orthophosphate as P	LA-DEQ	1870	10070403

Method EPA 365.4

Analyte	AB	Analyte ID	Method ID
Phosphorus	LA-DEQ	1910	10071202

Method EPA 410.4

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	LA-DEQ	1565	10077404

Method EPA 420.1

Analyte	AB	Analyte ID	Method ID
Total phenolics	LA-DEQ	1905	10079400

Method EPA 420.4

Analyte	AB	Analyte ID	Method ID

Total phenolics	LA-DEQ	1905	10080203

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10155201
Antimony	LA-DEQ	1005	10155201
Arsenic	LA-DEQ	1010	10155201
Barium	LA-DEQ	1015	10155201
Beryllium	LA-DEQ	1020	10155201
Boron	LA-DEQ	1025	10155201
Cadmium	LA-DEQ	1030	10155201
Calcium	LA-DEQ	1035	10155201
Chromium	LA-DEQ	1040	10155201
Cobalt	LA-DEQ	1050	10155201
Copper	LA-DEQ	1055	10155201
Iron	LA-DEQ	1070	10155201
Lead	LA-DEQ	1075	10155201
Lithium	LA-DEQ	1080	10155201
Magnesium	LA-DEQ	1085	10155201
Manganese	LA-DEQ	1090	10155201
Molybdenum	LA-DEQ	1100	10155201
Nickel	LA-DEQ	1105	10155201
Phosphorus	LA-DEQ	1910	10155201
Potassium	LA-DEQ	1125	10155201
Selenium	LA-DEQ	1140	10155201
Silver	LA-DEQ	1150	10155201
Sodium	LA-DEQ	1155	10155201
Strontium	LA-DEQ	1160	10155201
Thallium	LA-DEQ	1165	10155201
Tin	LA-DEQ	1175	10155201
Titanium	LA-DEQ	1180	10155201

Vanadium	LA-DEQ	1185	10155201
Zinc	LA-DEQ	1190	10155201

Method EPA 602

Analyte	AB	Analyte ID	Method ID
Benzene	LA-DEQ	4375	10102202
Ethylbenzene	LA-DEQ	4765	10102202
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10102202
Toluene	LA-DEQ	5140	10102202
Xylene (total)	LA-DEQ	5260	10102202

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10156419
Antimony	LA-DEQ	1005	10156419
Arsenic	LA-DEQ	1010	10156419
Barium	LA-DEQ	1015	10156419
Beryllium	LA-DEQ	1020	10156419
Boron	LA-DEQ	1025	10156419
Cadmium	LA-DEQ	1030	10156419
Calcium	LA-DEQ	1035	10156419
Chromium	LA-DEQ	1040	10156419
Cobalt	LA-DEQ	1050	10156419
Copper	LA-DEQ	1055	10156419
Iron	LA-DEQ	1070	10156419
Lead	LA-DEQ	1075	10156419
Magnesium	LA-DEQ	1085	10156419
Manganese	LA-DEQ	1090	10156419
Molybdenum	LA-DEQ	1100	10156419
Nickel	LA-DEQ	1105	10156419
Potassium	LA-DEQ	1125	10156419
Selenium	LA-DEQ	1140	10156419
Silver	LA-DEQ	1150	10156419

Matrix: ***Non-Potable Water***

Sodium	LA-DEQ	1155	10156419
Strontium	LA-DEQ	1160	10156419
Thallium	LA-DEQ	1165	10156419
Tin	LA-DEQ	1175	10156419
Titanium	LA-DEQ	1180	10156419
Vanadium	LA-DEQ	1185	10156419
Zinc	LA-DEQ	1190	10156419

Method EPA 608.3

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	LA-DEQ	7355	10296625
4,4'-DDE	LA-DEQ	7360	10296625
4,4'-DDT	LA-DEQ	7365	10296625
Aldrin	LA-DEQ	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10296625
alpha-Chlordane	LA-DEQ	7240	10296625
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10296625
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10296625
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10296625
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10296625
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10296625
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10296625
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10296625
Chlordane (tech.)	LA-DEQ	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10296625
Dieldrin	LA-DEQ	7470	10296625
Endosulfan I	LA-DEQ	7510	10296625
Endosulfan II	LA-DEQ	7515	10296625
Endosulfan sulfate	LA-DEQ	7520	10296625
Endrin	LA-DEQ	7540	10296625

Matrix: ***Non-Potable Water***

Endrin aldehyde	LA-DEQ	7530	10296625
Endrin ketone	LA-DEQ	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10296625
gamma-Chlordane	LA-DEQ	7245	10296625
Heptachlor	LA-DEQ	7685	10296625
Heptachlor epoxide	LA-DEQ	7690	10296625
Methoxychlor	LA-DEQ	7810	10296625
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10296625

Method EPA 610

Analyte	**AB**	**Analyte ID**	**Method ID**
Acenaphthene	LA-DEQ	5500	10104402
Acenaphthylene	LA-DEQ	5505	10104402
Anthracene	LA-DEQ	5555	10104402
Benzo(a)anthracene	LA-DEQ	5575	10104402
Benzo(a)pyrene	LA-DEQ	5580	10104402
Benzo(b)fluoranthene	LA-DEQ	5585	10104402
Benzo(g,h,i)perylene	LA-DEQ	5590	10104402
Benzo(k)fluoranthene	LA-DEQ	5600	10104402
Chrysene	LA-DEQ	5855	10104402
Dibenz(a,h) anthracene	LA-DEQ	5895	10104402
Fluoranthene	LA-DEQ	6265	10104402
Fluorene	LA-DEQ	6270	10104402
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10104402
Naphthalene	LA-DEQ	5005	10104402
Phenanthrene	LA-DEQ	6615	10104402
Pyrene	LA-DEQ	6665	10104402

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	LA-DEQ	5160	10298121
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10298121
1,1,2-Trichloroethane	LA-DEQ	5165	10298121

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Matrix: ***Non-Potable Water***

1,1-Dichloroethane	LA-DEQ	4630	10298121
1,1-Dichloroethylene	LA-DEQ	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10298121
1,2-Dichlorobenzene	LA-DEQ	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10298121
1,2-Dichloropropane	LA-DEQ	4655	10298121
1,3-Dichlorobenzene	LA-DEQ	4615	10298121
1,4-Dichlorobenzene	LA-DEQ	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10298121
2-Chloroethyl vinyl ether	LA-DEQ	4500	10298121
Acetone (2-Propanone)	LA-DEQ	4315	10298121
Acrolein (Propenal)	LA-DEQ	4325	10298121
Acrylonitrile	LA-DEQ	4340	10298121
Benzene	LA-DEQ	4375	10298121
Bromodichloromethane	LA-DEQ	4395	10298121
Bromoform	LA-DEQ	4400	10298121
Carbon tetrachloride	LA-DEQ	4455	10298121
Chlorobenzene	LA-DEQ	4475	10298121
Chlorodibromomethane	LA-DEQ	4575	10298121
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10298121
Chloroform	LA-DEQ	4505	10298121
cis-1,2-Dichloroethylene	LA-DEQ	4645	10298121
cis-1,3-Dichloropropene	LA-DEQ	4680	10298121
Ethylbenzene	LA-DEQ	4765	10298121
m+p-xylene	LA-DEQ	5240	10298121
Methyl bromide (Bromomethane)	LA-DEQ	4950	10298121
Methyl chloride (Chloromethane)	LA-DEQ	4960	10298121
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10298121
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10298121
Naphthalene	LA-DEQ	5005	10298121

Matrix: ***Non-Potable Water***

o-Xylene	LA-DEQ	5250	10298121
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10298121
Toluene	LA-DEQ	5140	10298121
Total trihalomethanes	LA-DEQ	5205	10298121
trans-1,2-Dichloroethylene	LA-DEQ	4700	10298121
trans-1,3-Dichloropropylene	LA-DEQ	4685	10298121
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10298121
Vinyl chloride	LA-DEQ	5235	10298121
Xylene (total)	LA-DEQ	5260	10298121

Method EPA 625.1

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10300024
1,2,4-Trichlorobenzene	LA-DEQ	5155	10300024
1,2-Dichlorobenzene	LA-DEQ	4610	10300024
1,2-Diphenylhydrazine	LA-DEQ	6221	10300024
1,3-Dichlorobenzene	LA-DEQ	4615	10300024
1,4-Dichlorobenzene	LA-DEQ	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10300024
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10300024
2,4,5-Trichlorophenol	LA-DEQ	6835	10300024
2,4,6-Trichlorophenol	LA-DEQ	6840	10300024
2,4-Dichlorophenol	LA-DEQ	6000	10300024
2,4-Dimethylphenol	LA-DEQ	6130	10300024
2,4-Dinitrophenol	LA-DEQ	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10300024
2-Chloronaphthalene	LA-DEQ	5795	10300024
2-Chlorophenol	LA-DEQ	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10300024

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Matrix: ***Non-Potable Water***

2-Methylphenol (o-Cresol)	LA-DEQ	6400	10300024
2-Nitrophenol	LA-DEQ	6490	10300024
3,3'-Dichlorobenzidine	LA-DEQ	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10300024
4-Chloro-3-methylphenol	LA-DEQ	5700	10300024
4-Chlorophenyl phenylether	LA-DEQ	5825	10300024
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10300024
4-Nitrophenol	LA-DEQ	6500	10300024
Acenaphthene	LA-DEQ	5500	10300024
Acenaphthylene	LA-DEQ	5505	10300024
Anthracene	LA-DEQ	5555	10300024
Benzidine	LA-DEQ	5595	10300024
Benzo(a)anthracene	LA-DEQ	5575	10300024
Benzo(a)pyrene	LA-DEQ	5580	10300024
Benzo(b)fluoranthene	LA-DEQ	5585	10300024
Benzo(g,h,i)perylene	LA-DEQ	5590	10300024
Benzo(k)fluoranthene	LA-DEQ	5600	10300024
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10300024
bis(2-Chloroethyl) ether	LA-DEQ	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10300024
Butyl benzyl phthalate	LA-DEQ	5670	10300024
Chrysene	LA-DEQ	5855	10300024
Dibenz(a,h) anthracene	LA-DEQ	5895	10300024
Diethyl phthalate	LA-DEQ	6070	10300024
Dimethyl phthalate	LA-DEQ	6135	10300024
Di-n-butyl phthalate	LA-DEQ	5925	10300024
Di-n-octyl phthalate	LA-DEQ	6200	10300024
Fluoranthene	LA-DEQ	6265	10300024
Fluorene	LA-DEQ	6270	10300024
Hexachlorobenzene	LA-DEQ	6275	10300024

Matrix: ***Non-Potable Water***

Hexachlorobutadiene	LA-DEQ	4835	10300024
Hexachlorocyclopentadiene	LA-DEQ	6285	10300024
Hexachloroethane	LA-DEQ	4840	10300024
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10300024
Isophorone	LA-DEQ	6320	10300024
Naphthalene	LA-DEQ	5005	10300024
Nitrobenzene	LA-DEQ	5015	10300024
n-Nitrosodiethylamine	LA-DEQ	6525	10300024
n-Nitrosodimethylamine	LA-DEQ	6530	10300024
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10300024
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10300024
n-Nitrosodiphenylamine	LA-DEQ	6535	10300024
Pentachlorobenzene	LA-DEQ	6590	10300024
Pentachlorophenol	LA-DEQ	6605	10300024
Phenanthrene	LA-DEQ	6615	10300024
Phenol	LA-DEQ	6625	10300024
Pyrene	LA-DEQ	6665	10300024
Pyridine	LA-DEQ	5095	10300024

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10162206

Method EPA 7199

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10163005

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DEQ	1095	10165603

Method EPA 8011

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10173009
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10173009

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Matrix: ***Non-Potable Water***

Method EPA 8015

Analyte	AB	Analyte ID	Method ID
Diesel range organics (DRO)	LA-DEQ	9369	10173203
Ethanol	LA-DEQ	4750	10173203
Ethylene glycol	LA-DEQ	4785	10173203
Gasoline range organics (GRO)	LA-DEQ	9408	10173203
Methanol	LA-DEQ	4930	10173203
Propylene Glycol	LA-DEQ	6657	10173203

Method EPA 8021

Analyte	AB	Analyte ID	Method ID
Benzene	LA-DEQ	4375	10174400
Ethylbenzene	LA-DEQ	4765	10174400
m+p-xylene	LA-DEQ	5240	10174400
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10174400
o-Xylene	LA-DEQ	5250	10174400
Toluene	LA-DEQ	5140	10174400
Xylene (total)	LA-DEQ	5260	10174400

Method EPA 8081

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	LA-DEQ	7355	10178402
4,4'-DDE	LA-DEQ	7360	10178402
4,4'-DDT	LA-DEQ	7365	10178402
Aldrin	LA-DEQ	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10178402
alpha-Chlordane	LA-DEQ	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10178402
Chlordane (tech.)	LA-DEQ	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10178402
Dieldrin	LA-DEQ	7470	10178402
Endosulfan I	LA-DEQ	7510	10178402
Endosulfan II	LA-DEQ	7515	10178402

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Endosulfan sulfate	LA-DEQ	7520	10178402
Endrin	LA-DEQ	7540	10178402
Endrin aldehyde	LA-DEQ	7530	10178402
Endrin ketone	LA-DEQ	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10178402
gamma-Chlordane	LA-DEQ	7245	10178402
Heptachlor	LA-DEQ	7685	10178402
Heptachlor epoxide	LA-DEQ	7690	10178402
Hexachlorobenzene	LA-DEQ	6275	10178402
Methoxychlor	LA-DEQ	7810	10178402
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10178402

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10179007
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10179007
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10179007
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10179007
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10179007
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10179007
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10179007
PCBs (total)	LA-DEQ	8870	10179007

Method EPA 8141

Analyte	**AB**	**Analyte ID**	**Method ID**
Atrazine	LA-DEQ	7065	10181803
Azinphos-methyl (Guthion)	LA-DEQ	7075	10181803
Bolstar (Sulprofos)	LA-DEQ	7125	10181803
Carbophenothion	LA-DEQ	7220	10181803
Chlorpyrifos (Dursban)	LA-DEQ	7300	10181803
Coumaphos	LA-DEQ	7315	10181803
Demeton	LA-DEQ	7390	10181803
Demeton-o	LA-DEQ	7395	10181803

Matrix: ***Non-Potable Water***

Demeton-s	LA-DEQ	7385	10181803
Diazinon	LA-DEQ	7410	10181803
Dichlorovos (DDVP, Dichlorvos)	LA-DEQ	8610	10181803
Dimethoate	LA-DEQ	7475	10181803
Disulfoton	LA-DEQ	8625	10181803
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	LA-DEQ	7550	10181803
Ethion	LA-DEQ	7565	10181803
Ethoprop	LA-DEQ	7570	10181803
Famphur	LA-DEQ	7580	10181803
Fensulfothion	LA-DEQ	7600	10181803
Fenthion	LA-DEQ	7605	10181803
Malathion	LA-DEQ	7770	10181803
Merphos	LA-DEQ	7785	10181803
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10181803
Mevinphos	LA-DEQ	7850	10181803
Naled	LA-DEQ	7905	10181803
Parathion, ethyl	LA-DEQ	7955	10181803
Phorate	LA-DEQ	7985	10181803
Phosmet (Imidan)	LA-DEQ	8000	10181803
Ronnel	LA-DEQ	8110	10181803
Sulfotepp	LA-DEQ	8155	10181803
Tetrachlorvinphos (Stirophos, Gardona)	LA-DEQ	8197	10181803
Tetraethyl pyrophosphate (TEPP)	LA-DEQ	8210	10181803
Tokuthion (Prothiophos)	LA-DEQ	8245	10181803
Trichloronate	LA-DEQ	8275	10181803

Method EPA 8151

Analyte	AB	Analyte ID	Method ID
2,4,5-T	LA-DEQ	8655	10183003
2,4-D	LA-DEQ	8545	10183003
2,4-DB	LA-DEQ	8560	10183003

Dalapon	LA-DEQ	8555	10183003
Dicamba	LA-DEQ	8595	10183003
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10183003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10183003
MCPA	LA-DEQ	7775	10183003
MCPP	LA-DEQ	7780	10183003
Pentachlorophenol	LA-DEQ	6605	10183003
Silvex (2,4,5-TP)	LA-DEQ	8650	10183003

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	LA-DEQ	5105	10184404
1,1,1-Trichloroethane	LA-DEQ	5160	10184404
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10184404
1,1,2-Trichloroethane	LA-DEQ	5165	10184404
1,1-Dichloroethane	LA-DEQ	4630	10184404
1,1-Dichloroethylene	LA-DEQ	4640	10184404
1,1-Dichloropropene	LA-DEQ	4670	10184404
1,2,3-Trichlorobenzene	LA-DEQ	5150	10184404
1,2,3-Trichloropropane	LA-DEQ	5180	10184404
1,2,4-Trichlorobenzene	LA-DEQ	5155	10184404
1,2,4-Trimethylbenzene	LA-DEQ	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10184404
1,2-Dichlorobenzene	LA-DEQ	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10184404
1,2-Dichloropropane	LA-DEQ	4655	10184404
1,3,5-Trimethylbenzene	LA-DEQ	5215	10184404
1,3-Dichlorobenzene	LA-DEQ	4615	10184404
1,3-Dichloropropane	LA-DEQ	4660	10184404

Matrix: ***Non-Potable Water***

1,4-Dichlorobenzene	LA-DEQ	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10184404
2,2-Dichloropropane	LA-DEQ	4665	10184404
2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10184404
2-Chloroethyl vinyl ether	LA-DEQ	4500	10184404
2-Chlorotoluene	LA-DEQ	4535	10184404
2-Hexanone (MBK)	LA-DEQ	4860	10184404
2-Nitropropane	LA-DEQ	5020	10184404
4-Chlorotoluene	LA-DEQ	4540	10184404
4-Isopropyltoluene (p-Cymene)	LA-DEQ	4915	10184404
4-Methyl-2-pentanone (MIBK)	LA-DEQ	4995	10184404
Acetone (2-Propanone)	LA-DEQ	4315	10184404
Acetonitrile	LA-DEQ	4320	10184404
Acrolein (Propenal)	LA-DEQ	4325	10184404
Acrylonitrile	LA-DEQ	4340	10184404
Allyl chloride (3-Chloropropene)	LA-DEQ	4355	10184404
Benzene	LA-DEQ	4375	10184404
Bromobenzene	LA-DEQ	4385	10184404
Bromochloromethane	LA-DEQ	4390	10184404
Bromodichloromethane	LA-DEQ	4395	10184404
Bromoform	LA-DEQ	4400	10184404
Carbon disulfide	LA-DEQ	4450	10184404
Carbon tetrachloride	LA-DEQ	4455	10184404
Chlorobenzene	LA-DEQ	4475	10184404
Chlorodibromomethane	LA-DEQ	4575	10184404
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10184404
Chloroform	LA-DEQ	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	LA-DEQ	4525	10184404
cis-1,2-Dichloroethylene	LA-DEQ	4645	10184404
cis-1,3-Dichloropropene	LA-DEQ	4680	10184404

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Matrix: ***Non-Potable Water***

cis-1,4-Dichloro-2-butene	LA-DEQ	4600	10184404
Dibromomethane (Methylene bromide)	LA-DEQ	4595	10184404
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10184404
Diethyl ether	LA-DEQ	4725	10184404
Di-isopropylether (DIPE)	LA-DEQ	9375	10184404
Ethanol	LA-DEQ	4750	10184404
Ethyl acetate	LA-DEQ	4755	10184404
Ethyl methacrylate	LA-DEQ	4810	10184404
Ethylbenzene	LA-DEQ	4765	10184404
Ethyl-t-butylether (ETBE) (2-Ethoxy-2-methylpropane)	LA-DEQ	4770	10184404
Hexachlorobutadiene	LA-DEQ	4835	10184404
Hexachloroethane	LA-DEQ	4840	10184404
Iodomethane (Methyl iodide)	LA-DEQ	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	LA-DEQ	4875	10184404
Isopropyl alcohol (2-Propanol, Isopropanol)	LA-DEQ	4895	10184404
Isopropylbenzene (Cumene)	LA-DEQ	4900	10184404
m+p-xylene	LA-DEQ	5240	10184404
Methacrylonitrile	LA-DEQ	4925	10184404
Methanol	LA-DEQ	4930	10184404
Methyl acetate	LA-DEQ	4940	10184404
Methyl acrylate	LA-DEQ	4945	10184404
Methyl bromide (Bromomethane)	LA-DEQ	4950	10184404
Methyl chloride (Chloromethane)	LA-DEQ	4960	10184404
Methyl methacrylate	LA-DEQ	4990	10184404
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10184404
Methylcyclohexane	LA-DEQ	4965	10184404
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10184404
Naphthalene	LA-DEQ	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	LA-DEQ	4425	10184404
n-Butylbenzene	LA-DEQ	4435	10184404

Matrix: ***Non-Potable Water***

n-Propylbenzene	LA-DEQ	5090	10184404
o-Xylene	LA-DEQ	5250	10184404
Pentachloroethane	LA-DEQ	5035	10184404
Propionitrile (Ethyl cyanide)	LA-DEQ	5080	10184404
sec-Butylbenzene	LA-DEQ	4440	10184404
Styrene	LA-DEQ	5100	10184404
T-amylmethylether (TAME)	LA-DEQ	4370	10184404
tert-Butyl alcohol	LA-DEQ	4420	10184404
tert-Butylbenzene	LA-DEQ	4445	10184404
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10184404
Toluene	LA-DEQ	5140	10184404
trans-1,2-Dichloroethylene	LA-DEQ	4700	10184404
trans-1,3-Dichloropropylene	LA-DEQ	4685	10184404
trans-1,4-Dichloro-2-butene	LA-DEQ	4605	10184404
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10184404
Vinyl acetate	LA-DEQ	5225	10184404
Vinyl chloride	LA-DEQ	5235	10184404
Xylene (total)	LA-DEQ	5260	10184404

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10185203
1,2,4-Trichlorobenzene	LA-DEQ	5155	10185203
1,2-Dichlorobenzene	LA-DEQ	4610	10185203
1,2-Diphenylhydrazine	LA-DEQ	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10185203
1,3-Dichlorobenzene	LA-DEQ	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10185203
1,4-Dichlorobenzene	LA-DEQ	4620	10185203
1,4-Naphthoquinone	LA-DEQ	6420	10185203

Certificate: T104704245-19-16

Expiration Date: 10/31/2020

Issue Date: 11/1/2019

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Matrix: ***Non-Potable Water***

1,4-Phenylenediamine	LA-DEQ	6630	10185203
1-Chloronaphthalene	LA-DEQ	5790	10185203
1-Naphthylamine	LA-DEQ	6425	10185203
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10185203
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10185203
2,4,5-Trichlorophenol	LA-DEQ	6835	10185203
2,4,6-Trichlorophenol	LA-DEQ	6840	10185203
2,4-Dichlorophenol	LA-DEQ	6000	10185203
2,4-Dimethylphenol	LA-DEQ	6130	10185203
2,4-Dinitrophenol	LA-DEQ	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10185203
2,6-Dichlorophenol	LA-DEQ	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10185203
2-Acetylaminofluorene	LA-DEQ	5515	10185203
2-Chloronaphthalene	LA-DEQ	5795	10185203
2-Chlorophenol	LA-DEQ	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10185203
2-Methylaniline (o-Toluidine)	LA-DEQ	5145	10185203
2-Methylnaphthalene	LA-DEQ	6385	10185203
2-Methylphenol (o-Cresol)	LA-DEQ	6400	10185203
2-Naphthylamine	LA-DEQ	6430	10185203
2-Nitroaniline	LA-DEQ	6460	10185203
2-Nitrophenol	LA-DEQ	6490	10185203
2-Picoline (2-Methylpyridine)	LA-DEQ	5050	10185203
3,3'-Dichlorobenzidine	LA-DEQ	5945	10185203
3,3'-Dimethylbenzidine	LA-DEQ	6120	10185203
3-Methylcholanthrene	LA-DEQ	6355	10185203
3-Methylphenol (m-Cresol)	LA-DEQ	6405	10185203
3-Nitroaniline	LA-DEQ	6465	10185203
4,4'-Methylenebis(2-chloroaniline)	LA-DEQ	6365	10185203

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Matrix: ***Non-Potable Water***

4-Aminobiphenyl	LA-DEQ	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10185203
4-Chloro-3-methylphenol	LA-DEQ	5700	10185203
4-Chloroaniline	LA-DEQ	5745	10185203
4-Chlorophenyl phenylether	LA-DEQ	5825	10185203
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10185203
4-Nitroaniline	LA-DEQ	6470	10185203
4-Nitrophenol	LA-DEQ	6500	10185203
4-Nitroquinoline-1-oxide	LA-DEQ	6510	10185203
5-Nitro-o-toluidine	LA-DEQ	6570	10185203
7,12-Dimethylbenz(a) anthracene	LA-DEQ	6115	10185203
a-a-Dimethylphenethylamine	LA-DEQ	6125	10185203
Acenaphthene	LA-DEQ	5500	10185203
Acenaphthylene	LA-DEQ	5505	10185203
Acetophenone	LA-DEQ	5510	10185203
Aniline	LA-DEQ	5545	10185203
Anthracene	LA-DEQ	5555	10185203
Aramite	LA-DEQ	5560	10185203
Atrazine	LA-DEQ	7065	10185203
Benzenethiol (Thiophenol)	LA-DEQ	6750	10185203
Benzidine	LA-DEQ	5595	10185203
Benzo(a)anthracene	LA-DEQ	5575	10185203
Benzo(a)pyrene	LA-DEQ	5580	10185203
Benzo(b)fluoranthene	LA-DEQ	5585	10185203
Benzo(g,h,i)perylene	LA-DEQ	5590	10185203
Benzo(k)fluoranthene	LA-DEQ	5600	10185203
Benzoic acid	LA-DEQ	5610	10185203
Benzyl alcohol	LA-DEQ	5630	10185203
Biphenyl	LA-DEQ	5640	10185203
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10185203

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

bis(2-Chloroethyl) ether	LA-DEQ	5765	10185203
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10185203
Butyl benzyl phthalate	LA-DEQ	5670	10185203
Caprolactam	LA-DEQ	7180	10185203
Carbazole	LA-DEQ	5680	10185203
Chlorobenzilate	LA-DEQ	7260	10185203
Chrysene	LA-DEQ	5855	10185203
Diallate	LA-DEQ	7405	10185203
Dibenz(a,h) anthracene	LA-DEQ	5895	10185203
Dibenz(a,j) acridine	LA-DEQ	5900	10185203
Dibenzo(a,e) pyrene	LA-DEQ	5890	10185203
Dibenzofuran	LA-DEQ	5905	10185203
Diethyl phthalate	LA-DEQ	6070	10185203
Dimethoate	LA-DEQ	7475	10185203
Dimethyl phthalate	LA-DEQ	6135	10185203
Di-n-butyl phthalate	LA-DEQ	5925	10185203
Di-n-octyl phthalate	LA-DEQ	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10185203
Diphenylamine	LA-DEQ	6205	10185203
Disulfoton	LA-DEQ	8625	10185203
Ethyl methanesulfonate	LA-DEQ	6260	10185203
Famphur	LA-DEQ	7580	10185203
Fluoranthene	LA-DEQ	6265	10185203
Fluorene	LA-DEQ	6270	10185203
Hexachlorobenzene	LA-DEQ	6275	10185203
Hexachlorobutadiene	LA-DEQ	4835	10185203
Hexachlorocyclopentadiene	LA-DEQ	6285	10185203
Hexachloroethane	LA-DEQ	4840	10185203
Hexachlorophene	LA-DEQ	6290	10185203
Hexachloropropene	LA-DEQ	6295	10185203

Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10185203
Isodrin	LA-DEQ	7725	10185203
Isophorone	LA-DEQ	6320	10185203
Isosafrole	LA-DEQ	6325	10185203
Kepone	LA-DEQ	7740	10185203
Methapyrilene	LA-DEQ	6345	10185203
Methyl methanesulfonate	LA-DEQ	6375	10185203
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10185203
Naphthalene	LA-DEQ	5005	10185203
Nitrobenzene	LA-DEQ	5015	10185203
n-Nitrosodiethylamine	LA-DEQ	6525	10185203
n-Nitrosodimethylamine	LA-DEQ	6530	10185203
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10185203
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10185203
n-Nitrosodiphenylamine	LA-DEQ	6535	10185203
n-Nitrosomethylethylamine	LA-DEQ	6550	10185203
n-Nitrosomorpholine	LA-DEQ	6555	10185203
n-Nitrosopiperidine	LA-DEQ	6560	10185203
n-Nitrosopyrrolidine	LA-DEQ	6565	10185203
o,o,o-Triethyl phosphorothioate	LA-DEQ	8290	10185203
Parathion, ethyl	LA-DEQ	7955	10185805
Pentachlorobenzene	LA-DEQ	6590	10185203
Pentachloronitrobenzene (PCNB)	LA-DEQ	6600	10185203
Pentachlorophenol	LA-DEQ	6605	10185203
Phenacetin	LA-DEQ	6610	10185203
Phenanthrene	LA-DEQ	6615	10185203
Phenol	LA-DEQ	6625	10185203
Phorate	LA-DEQ	7985	10185203
Phthalic anhydride	LA-DEQ	6640	10185203
Pronamide (Kerb)	LA-DEQ	6650	10185203

Pyrene	LA-DEQ	6665	10185203
Pyridine	LA-DEQ	5095	10185203
Quinoline	LA-DEQ	6670	10185203
Safrole	LA-DEQ	6685	10185203
Sulfotepp	LA-DEQ	8155	10185203
Thionazin (Zinophos)	LA-DEQ	8235	10185203
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	LA-DEQ	8310	10185203

Method EPA 8310

Analyte	**AB**	**Analyte ID**	**Method ID**
Acenaphthene	LA-DEQ	5500	10187607
Acenaphthylene	LA-DEQ	5505	10187607
Anthracene	LA-DEQ	5555	10187607
Benzo(a)anthracene	LA-DEQ	5575	10187607
Benzo(a)pyrene	LA-DEQ	5580	10187607
Benzo(b)fluoranthene	LA-DEQ	5585	10187607
Benzo(g,h,i)perylene	LA-DEQ	5590	10187607
Benzo(k)fluoranthene	LA-DEQ	5600	10187607
Chrysene	LA-DEQ	5855	10187607
Dibenz(a,h) anthracene	LA-DEQ	5895	10187607
Fluoranthene	LA-DEQ	6265	10187607
Fluorene	LA-DEQ	6270	10187607
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10187607
Naphthalene	LA-DEQ	5005	10187607
Phenanthrene	LA-DEQ	6615	10187607
Pyrene	LA-DEQ	6665	10187607

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	LA-DEQ	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10189807

Matrix: ***Non-Potable Water***

2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	LA-DEQ	9303	10189807
2-Nitrotoluene	LA-DEQ	9507	10189807
3-Nitrotoluene	LA-DEQ	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	LA-DEQ	9306	10189807
4-Nitrotoluene	LA-DEQ	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	LA-DEQ	6415	10189807
Nitrobenzene	LA-DEQ	5015	10189807
Nitroglycerin	LA-DEQ	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	LA-DEQ	9522	10189807
Pentaerythritoltetranitrate (PETN)	LA-DEQ	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	LA-DEQ	9432	10189807

Method EPA 900.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	LA-DEQ	2830	10308200
Gross-beta	LA-DEQ	2840	10308200

Method EPA 9012

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	LA-DEQ	1510	10193405
Total cyanide	LA-DEQ	1645	10193405

Method EPA 9020

Analyte	**AB**	**Analyte ID**	**Method ID**
Total organic halides (TOX)	LA-DEQ	2045	10194000

Method EPA 903.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Total radium	LA-DEQ	2975	10309407

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Conductivity	LA-DEQ	1610	10198604

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10199209
Chloride	LA-DEQ	1575	10199209
Fluoride	LA-DEQ	1730	10199209
Nitrate as N	LA-DEQ	1810	10199209
Nitrate-nitrite	LA-DEQ	1820	10199209
Nitrite as N	LA-DEQ	1840	10199209
Sulfate	LA-DEQ	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	LA-DEQ	2040	10200201

Method EPA 9066

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10200609

Method EPA RSK 175

Analyte	**AB**	**Analyte ID**	**Method ID**
Ethane	LA-DEQ	4747	10212905
Ethene	LA-DEQ	4752	10212905
Methane	LA-DEQ	4926	10212905
n-Propane	LA-DEQ	5029	10212905

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	LA-DEQ	1605	20223807

Method SM 2130 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	LA-DEQ	2055	20042200

Method SM 2310 B (4a)

Analyte	**AB**	**Analyte ID**	**Method ID**
Acidity, as CaCO3	LA-DEQ	1500	20002806

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	LA-DEQ	1505	20045005

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	20046008

Method SM 2340 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	LA-DEQ	1755	20047001

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	20048004

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	LA-DEQ	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	LA-DEQ	1955	20049803

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	LA-DEQ	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	LA-DEQ	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	20065809

Method SM 3500-Cr C

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	20066404

Method SM 3500-Fe B

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Iron	LA-DEQ	1070	20068604

Method SM 4110 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	LA-DEQ	1575	20076408
Fluoride	LA-DEQ	1730	20076408
Nitrate as N	LA-DEQ	1810	20076408
Nitrate-nitrite	LA-DEQ	1820	20076408
Nitrite as N	LA-DEQ	1840	20076408
Sulfate	LA-DEQ	2000	20076408

Method SM 4500-Cl G

Analyte	**AB**	**Analyte ID**	**Method ID**
Total residual chlorine	LA-DEQ	1940	20020604

Method SM 4500-CN$^-$ C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	LA-DEQ	1645	20020808

Method SM 4500-CN$^-$ E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	LA-DEQ	1645	20021209

Method SM 4500-CN$^-$ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	LA-DEQ	1510	20021607

Method SM 4500-F$^-$ C

Analyte	**AB**	**Analyte ID**	**Method ID**
Fluoride	LA-DEQ	1730	20101808

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	20104603

Method SM 4500-NH3 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	LA-DEQ	1790	20023603

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Matrix: ***Non-Potable Water***

Method SM 4500-NH3 G

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	LA-DEQ	1515	20023205

Method SM 4500-NO3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate-nitrite	LA-DEQ	1820	20024402

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	LA-DEQ	1880	20025201

Method SM 4500-O G

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	LA-DEQ	1880	20025405

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	LA-DEQ	1870	20025803

Method SM 4500-S2¯ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	LA-DEQ	2005	20125400

Method SM 4500-SO3¯ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	LA-DEQ	2015	20026806

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	LA-DEQ	1530	20027401
Carbonaceous BOD, CBOD	LA-DEQ	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	LA-DEQ	1565	20027809

Method SM 5310 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	LA-DEQ	2040	20137206

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Matrix: *Non-Potable Water*

Method SM 5540 C

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	LA-DEQ	2025	20144405

Method SM 6200 B

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	LA-DEQ	5160	20146605
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	20146605
1,1,2-Trichloroethane	LA-DEQ	5165	20146605
1,1-Dichloroethane	LA-DEQ	4630	20146605
1,1-Dichloroethylene	LA-DEQ	4640	20146605
1,2-Dichlorobenzene	LA-DEQ	4610	20146605
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	20146605
1,2-Dichloropropane	LA-DEQ	4655	20146605
1,3-Dichlorobenzene	LA-DEQ	4615	20146605
1,4-Dichlorobenzene	LA-DEQ	4620	20146605
2-Chloroethyl vinyl ether	LA-DEQ	4500	20146605
Benzene	LA-DEQ	4375	20146605
Bromodichloromethane	LA-DEQ	4395	20146605
Bromoform	LA-DEQ	4400	20146605
Chlorobenzene	LA-DEQ	4475	20146605
Chlorodibromomethane	LA-DEQ	4575	20146605
Chloroethane (Ethyl chloride)	LA-DEQ	4485	20146605
Chloroform	LA-DEQ	4505	20146605
cis-1,3-Dichloropropene	LA-DEQ	4680	20146605
Ethylbenzene	LA-DEQ	4765	20146605
Methyl bromide (Bromomethane)	LA-DEQ	4950	20146605
Methyl chloride (Chloromethane)	LA-DEQ	4960	20146605
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	20146605
Toluene	LA-DEQ	5140	20146605
trans-1,2-Dichloroethylene	LA-DEQ	4700	20146605
trans-1,3-Dichloropropylene	LA-DEQ	4685	20146605

Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	LA-DEQ	5170	20146605
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	20146605
Vinyl chloride	LA-DEQ	5235	20146605

Method SM 6640 B

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	LA-DEQ	8655	20031407
2,4-D	LA-DEQ	8545	20031407
Silvex (2,4,5-TP)	LA-DEQ	8650	20031407

Method SM 7500 Ra B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total radium	LA-DEQ	2975	20170007

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	LA-DEQ	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	LA-DEQ	1780	10116606

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	LA-DEQ	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	LA-DEQ	850	10119003

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	LA-DEQ	1540	10053200
Chloride	LA-DEQ	1575	10053200
Fluoride	LA-DEQ	1730	10053200
Nitrate as N	LA-DEQ	1810	10053200
Nitrate-nitrite	LA-DEQ	1820	10053200
Nitrite as N	LA-DEQ	1840	10053200
Orthophosphate as P	LA-DEQ	1870	10053200
Sulfate	LA-DEQ	2000	10053200

Method EPA 314.0

Analyte	AB	Analyte ID	Method ID
Perchlorate	LA-DEQ	1895	10277006

Method EPA 350.1

Analyte	AB	Analyte ID	Method ID
Ammonia as N	LA-DEQ	1515	10063408

Method EPA 6010

Analyte	AB	Analyte ID	Method ID
Aluminum	LA-DEQ	1000	10155201
Antimony	LA-DEQ	1005	10155201
Arsenic	LA-DEQ	1010	10155201
Barium	LA-DEQ	1015	10155201

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

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Issue Date: 11/1/2019

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Matrix: ***Solid & Chemical Materials***

Beryllium	LA-DEQ	1020	10155201
Boron	LA-DEQ	1025	10155201
Cadmium	LA-DEQ	1030	10155201
Calcium	LA-DEQ	1035	10155201
Chromium	LA-DEQ	1040	10155201
Cobalt	LA-DEQ	1050	10155201
Copper	LA-DEQ	1055	10155201
Iron	LA-DEQ	1070	10155201
Lead	LA-DEQ	1075	10155201
Lithium	LA-DEQ	1080	10155201
Magnesium	LA-DEQ	1085	10155201
Manganese	LA-DEQ	1090	10155201
Molybdenum	LA-DEQ	1100	10155201
Nickel	LA-DEQ	1105	10155201
Phosphorus	LA-DEQ	1910	10155201
Potassium	LA-DEQ	1125	10155201
Selenium	LA-DEQ	1140	10155201
Silver	LA-DEQ	1150	10155201
Sodium	LA-DEQ	1155	10155201
Strontium	LA-DEQ	1160	10155201
Thallium	LA-DEQ	1165	10155201
Tin	LA-DEQ	1175	10155201
Titanium	LA-DEQ	1180	10155201
Vanadium	LA-DEQ	1185	10155201
Zinc	LA-DEQ	1190	10155201

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	LA-DEQ	1000	10156419
Antimony	LA-DEQ	1005	10156419
Arsenic	LA-DEQ	1010	10156419

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Matrix: ***Solid & Chemical Materials***

Barium	LA-DEQ	1015	10156419
Beryllium	LA-DEQ	1020	10156419
Boron	LA-DEQ	1025	10156419
Cadmium	LA-DEQ	1030	10156419
Calcium	LA-DEQ	1035	10156419
Chromium	LA-DEQ	1040	10156419
Cobalt	LA-DEQ	1050	10156419
Copper	LA-DEQ	1055	10156419
Iron	LA-DEQ	1070	10156419
Lead	LA-DEQ	1075	10156419
Magnesium	LA-DEQ	1085	10156419
Manganese	LA-DEQ	1090	10156419
Molybdenum	LA-DEQ	1100	10156419
Nickel	LA-DEQ	1105	10156419
Potassium	LA-DEQ	1125	10156419
Selenium	LA-DEQ	1140	10156419
Silver	LA-DEQ	1150	10156419
Sodium	LA-DEQ	1155	10156419
Strontium	LA-DEQ	1160	10156419
Thallium	LA-DEQ	1165	10156419
Tin	LA-DEQ	1175	10156419
Titanium	LA-DEQ	1180	10156419
Vanadium	LA-DEQ	1185	10156419
Zinc	LA-DEQ	1190	10156419

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10162206

Method EPA 7199

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	LA-DEQ	1045	10163005

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Matrix: ***Solid & Chemical Materials***

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	LA-DEQ	1095	10166004

Method EPA 8015

Analyte	**AB**	**Analyte ID**	**Method ID**
Diesel range organics (DRO)	LA-DEQ	9369	10173203
Ethanol	LA-DEQ	4750	10173203
Ethylene glycol	LA-DEQ	4785	10173203
Gasoline range organics (GRO)	LA-DEQ	9408	10173203
Methanol	LA-DEQ	4930	10173203
Propylene Glycol	LA-DEQ	6657	10173203

Method EPA 8021

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	LA-DEQ	4375	10174400
Ethylbenzene	LA-DEQ	4765	10174400
m+p-xylene	LA-DEQ	5240	10174400
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10174400
o-Xylene	LA-DEQ	5250	10174400
Toluene	LA-DEQ	5140	10174400
Xylene (total)	LA-DEQ	5260	10174400

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	LA-DEQ	7355	10178402
4,4'-DDE	LA-DEQ	7360	10178402
4,4'-DDT	LA-DEQ	7365	10178402
Aldrin	LA-DEQ	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	LA-DEQ	7110	10178402
alpha-Chlordane	LA-DEQ	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	LA-DEQ	7115	10178402
Chlordane (tech.)	LA-DEQ	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	LA-DEQ	7105	10178402

Matrix: ***Solid & Chemical Materials***

Dieldrin	LA-DEQ	7470	10178402
Endosulfan I	LA-DEQ	7510	10178402
Endosulfan II	LA-DEQ	7515	10178402
Endosulfan sulfate	LA-DEQ	7520	10178402
Endrin	LA-DEQ	7540	10178402
Endrin aldehyde	LA-DEQ	7530	10178402
Endrin ketone	LA-DEQ	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	LA-DEQ	7120	10178402
gamma-Chlordane	LA-DEQ	7245	10178402
Heptachlor	LA-DEQ	7685	10178402
Heptachlor epoxide	LA-DEQ	7690	10178402
Hexachlorobenzene	LA-DEQ	6275	10178402
Methoxychlor	LA-DEQ	7810	10178402
Toxaphene (Chlorinated camphene)	LA-DEQ	8250	10178402

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	LA-DEQ	8880	10179007
Aroclor-1221 (PCB-1221)	LA-DEQ	8885	10179007
Aroclor-1232 (PCB-1232)	LA-DEQ	8890	10179007
Aroclor-1242 (PCB-1242)	LA-DEQ	8895	10179007
Aroclor-1248 (PCB-1248)	LA-DEQ	8900	10179007
Aroclor-1254 (PCB-1254)	LA-DEQ	8905	10179007
Aroclor-1260 (PCB-1260)	LA-DEQ	8910	10179007

Method EPA 8141

Analyte	**AB**	**Analyte ID**	**Method ID**
Azinphos-methyl (Guthion)	LA-DEQ	7075	10181803
Bolstar (Sulprofos)	LA-DEQ	7125	10181803
Chlorpyrifos (Dursban)	LA-DEQ	7300	10181803
Coumaphos	LA-DEQ	7315	10181803
Demeton	LA-DEQ	7390	10181803
Demeton-o	LA-DEQ	7395	10181803

Matrix: ***Solid & Chemical Materials***

Demeton-s	LA-DEQ	7385	10181803
Diazinon	LA-DEQ	7410	10181803
Dichlorovos (DDVP, Dichlorvos)	LA-DEQ	8610	10181803
Dimethoate	LA-DEQ	7475	10181803
Disulfoton	LA-DEQ	8625	10181803
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	LA-DEQ	7550	10181803
Ethoprop	LA-DEQ	7570	10181803
Fensulfothion	LA-DEQ	7600	10181803
Fenthion	LA-DEQ	7605	10181803
Malathion	LA-DEQ	7770	10181803
Merphos	LA-DEQ	7785	10181803
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10181803
Mevinphos	LA-DEQ	7850	10181803
Naled	LA-DEQ	7905	10181803
Parathion, ethyl	LA-DEQ	7955	10182000
Phorate	LA-DEQ	7985	10181803
Ronnel	LA-DEQ	8110	10181803
Sulfotepp	LA-DEQ	8155	10181803
Tetrachlorvinphos (Stirophos, Gardona)	LA-DEQ	8197	10181803
Tetraethyl pyrophosphate (TEPP)	LA-DEQ	8210	10181803
Tokuthion (Prothiophos)	LA-DEQ	8245	10181803
Trichloronate	LA-DEQ	8275	10181803

Method EPA 8151

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	LA-DEQ	8655	10183003
2,4-D	LA-DEQ	8545	10183003
2,4-DB	LA-DEQ	8560	10183003
Dalapon	LA-DEQ	8555	10183003
Dicamba	LA-DEQ	8595	10183003
Dichloroprop (Dichlorprop, Weedone)	LA-DEQ	8605	10183003

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Matrix: ***Solid & Chemical Materials***

Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10183003
MCPA	LA-DEQ	7775	10183003
MCPP	LA-DEQ	7780	10183003
Pentachlorophenol	LA-DEQ	6605	10183003
Silvex (2,4,5-TP)	LA-DEQ	8650	10183003

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	LA-DEQ	5105	10184404
1,1,1-Trichloroethane	LA-DEQ	5160	10184404
1,1,2,2-Tetrachloroethane	LA-DEQ	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	LA-DEQ	5195	10184404
1,1,2-Trichloroethane	LA-DEQ	5165	10184404
1,1-Dichloroethane	LA-DEQ	4630	10184404
1,1-Dichloroethylene	LA-DEQ	4640	10184404
1,1-Dichloropropene	LA-DEQ	4670	10184404
1,2,3-Trichlorobenzene	LA-DEQ	5150	10184404
1,2,3-Trichloropropane	LA-DEQ	5180	10184404
1,2,4-Trichlorobenzene	LA-DEQ	5155	10184404
1,2,4-Trimethylbenzene	LA-DEQ	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	LA-DEQ	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	LA-DEQ	4585	10184404
1,2-Dichlorobenzene	LA-DEQ	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	LA-DEQ	4635	10184404
1,2-Dichloropropane	LA-DEQ	4655	10184404
1,3,5-Trimethylbenzene	LA-DEQ	5215	10184404
1,3-Dichlorobenzene	LA-DEQ	4615	10184404
1,3-Dichloropropane	LA-DEQ	4660	10184404
1,4-Dichlorobenzene	LA-DEQ	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	LA-DEQ	4735	10184404
2,2-Dichloropropane	LA-DEQ	4665	10184404

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Matrix: ***Solid & Chemical Materials***

2-Butanone (Methyl ethyl ketone, MEK)	LA-DEQ	4410	10184404
2-Chloroethyl vinyl ether	LA-DEQ	4500	10184404
2-Chlorotoluene	LA-DEQ	4535	10184404
2-Hexanone (MBK)	LA-DEQ	4860	10184404
2-Nitropropane	LA-DEQ	5020	10184404
4-Chlorotoluene	LA-DEQ	4540	10184404
4-Isopropyltoluene (p-Cymene)	LA-DEQ	4915	10184404
4-Methyl-2-pentanone (MIBK)	LA-DEQ	4995	10184404
Acetone (2-Propanone)	LA-DEQ	4315	10184404
Acetonitrile	LA-DEQ	4320	10184404
Acrolein (Propenal)	LA-DEQ	4325	10184404
Acrylonitrile	LA-DEQ	4340	10184404
Allyl chloride (3-Chloropropene)	LA-DEQ	4355	10184404
Benzene	LA-DEQ	4375	10184404
Bromobenzene	LA-DEQ	4385	10184404
Bromochloromethane	LA-DEQ	4390	10184404
Bromodichloromethane	LA-DEQ	4395	10184404
Bromoform	LA-DEQ	4400	10184404
Carbon disulfide	LA-DEQ	4450	10184404
Carbon tetrachloride	LA-DEQ	4455	10184404
Chlorobenzene	LA-DEQ	4475	10184404
Chlorodibromomethane	LA-DEQ	4575	10184404
Chloroethane (Ethyl chloride)	LA-DEQ	4485	10184404
Chloroform	LA-DEQ	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	LA-DEQ	4525	10184404
cis-1,2-Dichloroethylene	LA-DEQ	4645	10184404
cis-1,3-Dichloropropene	LA-DEQ	4680	10184404
cis-1,4-Dichloro-2-butene	LA-DEQ	4600	10184404
Dibromomethane (Methylene bromide)	LA-DEQ	4595	10184404
Dichlorodifluoromethane (Freon-12)	LA-DEQ	4625	10184404

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Matrix: ***Solid & Chemical Materials***

Diethyl ether	LA-DEQ	4725	10184404
Ethanol	LA-DEQ	4750	10184404
Ethyl acetate	LA-DEQ	4755	10184404
Ethyl methacrylate	LA-DEQ	4810	10184404
Ethylbenzene	LA-DEQ	4765	10184404
Hexachlorobutadiene	LA-DEQ	4835	10184404
Hexachloroethane	LA-DEQ	4840	10184404
Iodomethane (Methyl iodide)	LA-DEQ	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	LA-DEQ	4875	10184404
Isopropylbenzene (Cumene)	LA-DEQ	4900	10184404
m+p-xylene	LA-DEQ	5240	10184404
Methacrylonitrile	LA-DEQ	4925	10184404
Methyl acetate	LA-DEQ	4940	10184404
Methyl acrylate	LA-DEQ	4945	10184404
Methyl bromide (Bromomethane)	LA-DEQ	4950	10184404
Methyl chloride (Chloromethane)	LA-DEQ	4960	10184404
Methyl methacrylate	LA-DEQ	4990	10184404
Methyl tert-butyl ether (MTBE)	LA-DEQ	5000	10184404
Methylcyclohexane	LA-DEQ	4965	10184404
Methylene chloride (Dichloromethane)	LA-DEQ	4975	10184404
Naphthalene	LA-DEQ	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	LA-DEQ	4425	10184404
n-Butylbenzene	LA-DEQ	4435	10184404
n-Propylbenzene	LA-DEQ	5090	10184404
o-Xylene	LA-DEQ	5250	10184404
Pentachloroethane	LA-DEQ	5035	10184404
Propionitrile (Ethyl cyanide)	LA-DEQ	5080	10184404
sec-Butylbenzene	LA-DEQ	4440	10184404
Styrene	LA-DEQ	5100	10184404
tert-Butyl alcohol	LA-DEQ	4420	10184404

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Matrix: ***Solid & Chemical Materials***

tert-Butylbenzene	LA-DEQ	4445	10184404
Tetrachloroethylene (Perchloroethylene)	LA-DEQ	5115	10184404
Toluene	LA-DEQ	5140	10184404
trans-1,2-Dichloroethylene	LA-DEQ	4700	10184404
trans-1,3-Dichloropropylene	LA-DEQ	4685	10184404
trans-1,4-Dichloro-2-butene	LA-DEQ	4605	10184404
Trichloroethene (Trichloroethylene)	LA-DEQ	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	LA-DEQ	5175	10184404
Vinyl acetate	LA-DEQ	5225	10184404
Vinyl chloride	LA-DEQ	5235	10184404
Xylene (total)	LA-DEQ	5260	10184404

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	LA-DEQ	6715	10185203
1,2,4-Trichlorobenzene	LA-DEQ	5155	10185203
1,2-Dichlorobenzene	LA-DEQ	4610	10185203
1,2-Diphenylhydrazine	LA-DEQ	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10185203
1,3-Dichlorobenzene	LA-DEQ	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10185203
1,4-Dichlorobenzene	LA-DEQ	4620	10185203
1,4-Dinitrobenzene	LA-DEQ	6165	10185203
1,4-Naphthoquinone	LA-DEQ	6420	10185203
1,4-Phenylenediamine	LA-DEQ	6630	10185203
1-Chloronaphthalene	LA-DEQ	5790	10185203
1-Naphthylamine	LA-DEQ	6425	10185203
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	LA-DEQ	4659	10185203
2,3,4,6-Tetrachlorophenol	LA-DEQ	6735	10185203
2,4,5-Trichlorophenol	LA-DEQ	6835	10185203
2,4,6-Trichlorophenol	LA-DEQ	6840	10185203

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Matrix: ***Solid & Chemical Materials***

2,4-Dichlorophenol	LA-DEQ	6000	10185203
2,4-Dimethylphenol	LA-DEQ	6130	10185203
2,4-Dinitrophenol	LA-DEQ	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10185203
2,6-Dichlorophenol	LA-DEQ	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10185203
2-Acetylaminofluorene	LA-DEQ	5515	10185203
2-Chloronaphthalene	LA-DEQ	5795	10185203
2-Chlorophenol	LA-DEQ	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	LA-DEQ	6360	10185203
2-Methylaniline (o-Toluidine)	LA-DEQ	5145	10185203
2-Methylnaphthalene	LA-DEQ	6385	10185203
2-Methylphenol (o-Cresol)	LA-DEQ	6400	10185203
2-Naphthylamine	LA-DEQ	6430	10185203
2-Nitroaniline	LA-DEQ	6460	10185203
2-Nitrophenol	LA-DEQ	6490	10185203
2-Picoline (2-Methylpyridine)	LA-DEQ	5050	10185203
3,3'-Dichlorobenzidine	LA-DEQ	5945	10185203
3,3'-Dimethylbenzidine	LA-DEQ	6120	10185203
3-Methylcholanthrene	LA-DEQ	6355	10185203
3-Methylphenol (m-Cresol)	LA-DEQ	6405	10185203
3-Nitroaniline	LA-DEQ	6465	10185203
4,4'-Methylenebis(2-chloroaniline)	LA-DEQ	6365	10185203
4-Aminobiphenyl	LA-DEQ	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	LA-DEQ	5660	10185203
4-Chloro-3-methylphenol	LA-DEQ	5700	10185203
4-Chloroaniline	LA-DEQ	5745	10185203
4-Chlorophenyl phenylether	LA-DEQ	5825	10185203
4-Dimethyl aminoazobenzene	LA-DEQ	6105	10185203
4-Methylphenol (p-Cresol)	LA-DEQ	6410	10185203

Matrix: ***Solid & Chemical Materials***

4-Nitroaniline	LA-DEQ	6470	10185203
4-Nitrophenol	LA-DEQ	6500	10185203
4-Nitroquinoline-1-oxide	LA-DEQ	6510	10185203
5-Nitro-o-toluidine	LA-DEQ	6570	10185203
7,12-Dimethylbenz(a) anthracene	LA-DEQ	6115	10185203
a-a-Dimethylphenethylamine	LA-DEQ	6125	10185203
Acenaphthene	LA-DEQ	5500	10185203
Acenaphthylene	LA-DEQ	5505	10185203
Acetophenone	LA-DEQ	5510	10185203
Aniline	LA-DEQ	5545	10185203
Anthracene	LA-DEQ	5555	10185203
Aramite	LA-DEQ	5560	10185203
Atrazine	LA-DEQ	7065	10185203
Benzenethiol (Thiophenol)	LA-DEQ	6750	10185203
Benzidine	LA-DEQ	5595	10185203
Benzo(a)anthracene	LA-DEQ	5575	10185203
Benzo(a)pyrene	LA-DEQ	5580	10185203
Benzo(b)fluoranthene	LA-DEQ	5585	10185203
Benzo(g,h,i)perylene	LA-DEQ	5590	10185203
Benzo(k)fluoranthene	LA-DEQ	5600	10185203
Benzoic acid	LA-DEQ	5610	10185203
Benzyl alcohol	LA-DEQ	5630	10185203
Biphenyl	LA-DEQ	5640	10185203
bis(2-Chloroethoxy)methane	LA-DEQ	5760	10185203
bis(2-Chloroethyl) ether	LA-DEQ	5765	10185203
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	LA-DEQ	6065	10185203
Butyl benzyl phthalate	LA-DEQ	5670	10185203
Caprolactam	LA-DEQ	7180	10185203
Carbazole	LA-DEQ	5680	10185203
Chlorobenzilate	LA-DEQ	7260	10185203

Matrix: ***Solid & Chemical Materials***

Chrysene	LA-DEQ	5855	10185203
Diallate	LA-DEQ	7405	10185203
Dibenz(a,h) anthracene	LA-DEQ	5895	10185203
Dibenz(a,j) acridine	LA-DEQ	5900	10185203
Dibenzo(a,e) pyrene	LA-DEQ	5890	10185203
Dibenzofuran	LA-DEQ	5905	10185203
Diethyl phthalate	LA-DEQ	6070	10185203
Dimethoate	LA-DEQ	7475	10185203
Dimethyl phthalate	LA-DEQ	6135	10185203
Di-n-butyl phthalate	LA-DEQ	5925	10185203
Di-n-octyl phthalate	LA-DEQ	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	LA-DEQ	8620	10185203
Diphenylamine	LA-DEQ	6205	10185203
Disulfoton	LA-DEQ	8625	10185203
Ethyl methanesulfonate	LA-DEQ	6260	10185203
Famphur	LA-DEQ	7580	10185203
Fluoranthene	LA-DEQ	6265	10185203
Fluorene	LA-DEQ	6270	10185203
Hexachlorobenzene	LA-DEQ	6275	10185203
Hexachlorobutadiene	LA-DEQ	4835	10185203
Hexachlorocyclopentadiene	LA-DEQ	6285	10185203
Hexachloroethane	LA-DEQ	4840	10185203
Hexachlorophene	LA-DEQ	6290	10185203
Hexachloropropene	LA-DEQ	6295	10185203
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10185203
Isodrin	LA-DEQ	7725	10185203
Isophorone	LA-DEQ	6320	10185203
Isosafrole	LA-DEQ	6325	10185203
Kepone	LA-DEQ	7740	10185203
Methapyrilene	LA-DEQ	6345	10185203

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704245-19-16

Expiration Date: 10/31/2020

Issue Date: 11/1/2019

Environmental Science Corp. dba: Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road
Mount Juliet, TN 37122-2508

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Matrix: ***Solid & Chemical Materials***

Methyl methanesulfonate	LA-DEQ	6375	10185203
Methyl parathion (Parathion, methyl)	LA-DEQ	7825	10185203
Methylphenols, total	LA-DEQ	10313	10185203
Naphthalene	LA-DEQ	5005	10185203
Nitrobenzene	LA-DEQ	5015	10185203
n-Nitrosodiethylamine	LA-DEQ	6525	10185203
n-Nitrosodimethylamine	LA-DEQ	6530	10185203
n-Nitrosodi-n-butylamine	LA-DEQ	5025	10185203
n-Nitrosodi-n-propylamine	LA-DEQ	6545	10185203
n-Nitrosodiphenylamine	LA-DEQ	6535	10185203
n-Nitrosomethylethylamine	LA-DEQ	6550	10185203
n-Nitrosomorpholine	LA-DEQ	6555	10185203
n-Nitrosopiperidine	LA-DEQ	6560	10185203
n-Nitrosopyrrolidine	LA-DEQ	6565	10185203
o,o,o-Triethyl phosphorothioate	LA-DEQ	8290	10185203
Parathion, ethyl	LA-DEQ	7955	10185203
Pentachlorobenzene	LA-DEQ	6590	10185203
Pentachloronitrobenzene (PCNB)	LA-DEQ	6600	10185203
Pentachlorophenol	LA-DEQ	6605	10185203
Phenacetin	LA-DEQ	6610	10185203
Phenanthrene	LA-DEQ	6615	10185203
Phenol	LA-DEQ	6625	10185203
Phorate	LA-DEQ	7985	10185203
Phthalic anhydride	LA-DEQ	6640	10185203
Pronamide (Kerb)	LA-DEQ	6650	10185203
Pyrene	LA-DEQ	6665	10185203
Pyridine	LA-DEQ	5095	10185203
Quinoline	LA-DEQ	6670	10185203
Safrole	LA-DEQ	6685	10185203
Sulfotepp	LA-DEQ	8155	10185203

Matrix: ***Solid & Chemical Materials***

Thionazin (Zinophos)	LA-DEQ	8235	10185203
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	LA-DEQ	8310	10185203

Method EPA 8310

Analyte	**AB**	**Analyte ID**	**Method ID**
Acenaphthene	LA-DEQ	5500	10187607
Acenaphthylene	LA-DEQ	5505	10187607
Anthracene	LA-DEQ	5555	10187607
Benzo(a)anthracene	LA-DEQ	5575	10187607
Benzo(a)pyrene	LA-DEQ	5580	10187607
Benzo(b)fluoranthene	LA-DEQ	5585	10187607
Benzo(g,h,i)perylene	LA-DEQ	5590	10187607
Benzo(k)fluoranthene	LA-DEQ	5600	10187607
Chrysene	LA-DEQ	5855	10187607
Dibenz(a,h) anthracene	LA-DEQ	5895	10187607
Fluoranthene	LA-DEQ	6265	10187607
Fluorene	LA-DEQ	6270	10187607
Indeno(1,2,3-cd) pyrene	LA-DEQ	6315	10187607
Naphthalene	LA-DEQ	5005	10187607
Phenanthrene	LA-DEQ	6615	10187607
Pyrene	LA-DEQ	6665	10187607

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	LA-DEQ	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	LA-DEQ	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	LA-DEQ	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	LA-DEQ	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	LA-DEQ	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	LA-DEQ	9303	10189807
2-Nitrotoluene	LA-DEQ	9507	10189807
3-Nitrotoluene	LA-DEQ	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	LA-DEQ	9306	10189807

4-Nitrotoluene	LA-DEQ	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	LA-DEQ	6415	10189807
Nitrobenzene	LA-DEQ	5015	10189807
Nitroglycerin	LA-DEQ	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	LA-DEQ	9522	10189807
Pentaerythritoltetranitrate (PETN)	LA-DEQ	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	LA-DEQ	9432	10189807

Method EPA 9012

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	LA-DEQ	1510	10193405
Total cyanide	LA-DEQ	1645	10193405

Method EPA 9023

Analyte	**AB**	**Analyte ID**	**Method ID**
Extractable organics halides (EOX)	LA-DEQ	1720	10195003

Method EPA 9034

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	LA-DEQ	2005	10196006

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	LA-DEQ	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	LA-DEQ	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	LA-DEQ	1540	10199209
Chloride	LA-DEQ	1575	10199209
Fluoride	LA-DEQ	1730	10199209
Nitrate as N	LA-DEQ	1810	10199209
Nitrate-nitrite	LA-DEQ	1820	10199209
Nitrite as N	LA-DEQ	1840	10199209

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Matrix: ***Solid & Chemical Materials***

Orthophosphate as P	LA-DEQ	1870	10199209
Sulfate	LA-DEQ	2000	10199209

Method EPA 906.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Tritium	LA-DEQ	3030	10310200

Method EPA 9066

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	LA-DEQ	1905	10200609

Method EPA 9071

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	LA-DEQ	1803	10201204
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	LA-DEQ	10220	10201204

Method EPA 9076

Analyte	**AB**	**Analyte ID**	**Method ID**
Total chlorine	LA-DEQ	1585	10202401

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	LA-DEQ	10312	10204009

Method EPA 9310

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross-alpha	LA-DEQ	2830	10310802
Gross-beta	LA-DEQ	2840	10310802

Method HASL-300 Ga-01-R

Analyte	**AB**	**Analyte ID**	**Method ID**
Gross gamma	LA-DEQ	2855	90000207

Method HASL-300 U-02-RC

Analyte	**AB**	**Analyte ID**	**Method ID**
Uranium	LA-DEQ	3035	90011204

Method SM 2540 G

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	LA-DEQ	1950	20005203

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704245-19-16**
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Matrix: ***Solid & Chemical Materials***

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	LA-DEQ	2050	90019208

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 28, 2020

Ms. Elizabeth Turner
Pace Analytical Services, LLC - Dallas, TX
400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Subject: Amendment application

Dear Ms. Turner:

Based on the amendment request submitted on March 09, 2020, I am enclosing an updated NELAP accreditation certificate and Fields of Accreditation listing. They replace the previous ones issued on July 25, 2019.

Please review the enclosures for accuracy and completeness. Your laboratory's accreditation is valid until the expiration date on the certificate and scope, contingent on continued compliance with the standards for accreditation and requirements of the state of Texas.

In the meantime, please contact Mr. Frank Jamison at frank.jamison@tceq.texas.gov or (512) 239-3754 if we can provide any additional information or assistance.

Sincerely,

Ken Lancaster

Ken Lancaster
Manager, Laboratory & Quality Assurance Section

Enclosures

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Executive Director Texas Commission on Environmental Quality

Certificate Number: T104704232-20-30
Effective Date: 4/28/2020
Expiration Date: 6/30/2020

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-30
Expiration Date: 6/30/2020
Issue Date: 4/28/2020

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Drinking Water***

Method SM 9222 D (MFC Medium)

Analyte	AB	Analyte ID	Method ID
Fecal coliforms (enumeration)	TX	2530	20210008

Method SM 9223-IDEXX Laboratories Colilert® Test

Analyte	AB	Analyte ID	Method ID
Total coliforms and E. coli (P/A)	TX	2502	20212413

Method SM 9223-IDEXX Laboratories Colilert® Quanti-Tray Test

Analyte	AB	Analyte ID	Method ID
Escherichia coli (enumeration)	TX	2525	20211603
Total coliforms (enumeration)	TX	2500	20211603

Certificate:	**T104704232-20-30**
Expiration Date:	**6/30/2020**
Issue Date:	**4/28/2020**

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Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 160.4

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-volatile	TX	1970	10010409

Method EPA 1664

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Silica Gel Treated n-Hexane Extractable Material (SGT-HEM)	TX	10220	10127807

Method EPA 1666

Analyte	**AB**	**Analyte ID**	**Method ID**
Ethyl acetate	TX	4755	10128208
Isopropyl acetate	TX	4890	10128208
n-Amyl acetate	TX	4360	10128208

Method EPA 180.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Turbidity	TX	2055	10011606

Method EPA 200.7

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10013806
Antimony	TX	1005	10013806

Certificate:	**T104704232-20-30**
Expiration Date:	**6/30/2020**
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Matrix: ***Non-Potable Water***

Arsenic	TX	1010	10013806
Barium	TX	1015	10013806
Beryllium	TX	1020	10013806
Boron	TX	1025	10013806
Cadmium	TX	1030	10013806
Calcium	TX	1035	10013806
Chromium	TX	1040	10013806
Cobalt	TX	1050	10013806
Copper	TX	1055	10013806
Iron	TX	1070	10013806
Lead	TX	1075	10013806
Magnesium	TX	1085	10013806
Manganese	TX	1090	10013806
Molybdenum	TX	1100	10013806
Nickel	TX	1105	10013806
Potassium	TX	1125	10013806
Selenium	TX	1140	10013806
Silver	TX	1150	10013806
Sodium	TX	1155	10013806
Strontium	TX	1160	10013806
Thallium	TX	1165	10013806
Tin	TX	1175	10013806
Titanium	TX	1180	10013806
Vanadium	TX	1185	10013806
Zinc	TX	1190	10013806

Method EPA 200.8

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Thallium	TX	1165	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200

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Matrix: ***Non-Potable Water***

Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067400
Nitrate-nitrite	TX	1820	10067400
Nitrite as N	TX	1840	10067400

Method EPA 360.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	10069008

Method EPA 420.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10079400

Method EPA 524.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Acetone (2-Propanone)	TX	4315	10088809
Methylene chloride (Dichloromethane)	TX	4975	10088809

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609
Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609

Certificate:	**T104704232-20-30**
Expiration Date:	**6/30/2020**
Issue Date:	**4/28/2020**

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Matrix: ***Non-Potable Water***

Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Sodium	TX	1155	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419
Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419

Matrix: ***Non-Potable Water***

Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Sodium	TX	1155	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 608

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603
Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603

Matrix: ***Non-Potable Water***

Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

Method EPA 608.3

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10296625
4,4'-DDE	TX	7360	10296625
4,4'-DDT	TX	7365	10296625
Aldrin	TX	7025	10296625
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10296625
alpha-Chlordane	TX	7240	10296625
Aroclor-1016 (PCB-1016)	TX	8880	10296625
Aroclor-1221 (PCB-1221)	TX	8885	10296625
Aroclor-1232 (PCB-1232)	TX	8890	10296625
Aroclor-1242 (PCB-1242)	TX	8895	10296625
Aroclor-1248 (PCB-1248)	TX	8900	10296625
Aroclor-1254 (PCB-1254)	TX	8905	10296625
Aroclor-1260 (PCB-1260)	TX	8910	10296625
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10296625
Chlordane (tech.)	TX	7250	10296625
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10296625
Dieldrin	TX	7470	10296625
Endosulfan I	TX	7510	10296625
Endosulfan II	TX	7515	10296625
Endosulfan sulfate	TX	7520	10296625
Endrin	TX	7540	10296625

Matrix: ***Non-Potable Water***

Endrin aldehyde	TX	7530	10296625
Endrin ketone	TX	7535	10296625
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10296625
gamma-Chlordane	TX	7245	10296625
Heptachlor	TX	7685	10296625
Heptachlor epoxide	TX	7690	10296625
Methoxychlor	TX	7810	10296625
Toxaphene (Chlorinated camphene)	TX	8250	10296625

Method EPA 615

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10298201
2,4-D	TX	8545	10298201
2,4-DB	TX	8560	10298201
Dalapon	TX	8555	10298201
Dicamba	TX	8595	10298201
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10298201
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10298201
MCPA	TX	7775	10298201
MCPP	TX	7780	10298201
Silvex (2,4,5-TP)	TX	8650	10298201

Method EPA 624

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	**T104704232-20-30**
Expiration Date:	**6/30/2020**
Issue Date:	**4/28/2020**

Pace Analytical Services, LLC - Dallas, TX

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

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Matrix: ***Non-Potable Water***

1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207

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Matrix: ***Non-Potable Water***

Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 624.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,1,1-Trichloroethane	TX	5160	10298121
1,1,2,2-Tetrachloroethane	TX	5110	10298121
1,1,2-Trichloroethane	TX	5165	10298121
1,1-Dichloroethane	TX	4630	10298121
1,1-Dichloroethylene	TX	4640	10298121
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10298121
1,2-Dichlorobenzene	TX	4610	10298121
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10298121
1,2-Dichloropropane	TX	4655	10298121
1,3-Dichlorobenzene	TX	4615	10298121
1,4-Dichlorobenzene	TX	4620	10298121
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10298121
2-Chloroethyl vinyl ether	TX	4500	10298121
Acetone (2-Propanone)	TX	4315	10298121
Acrolein (Propenal)	TX	4325	10298121
Acrylonitrile	TX	4340	10298121
Benzene	TX	4375	10298121
Bromodichloromethane	TX	4395	10298121
Bromoform	TX	4400	10298121
Carbon tetrachloride	TX	4455	10298121
Chlorobenzene	TX	4475	10298121
Chlorodibromomethane	TX	4575	10298121
Chloroethane (Ethyl chloride)	TX	4485	10298121
Chloroform	TX	4505	10298121

Matrix: ***Non-Potable Water***

cis-1,2-Dichloroethylene	TX	4645	10298121
cis-1,3-Dichloropropene	TX	4680	10298121
Ethylbenzene	TX	4765	10298121
m+p-xylene	TX	5240	10298121
Methyl bromide (Bromomethane)	TX	4950	10298121
Methyl chloride (Chloromethane)	TX	4960	10298121
Methyl tert-butyl ether (MTBE)	TX	5000	10298121
Methylene chloride (Dichloromethane)	TX	4975	10298121
Naphthalene	TX	5005	10298121
o-Xylene	TX	5250	10298121
Tetrachloroethylene (Perchloroethylene)	TX	5115	10298121
Toluene	TX	5140	10298121
Total trihalomethanes	TX	5205	10298121
trans-1,2-Dichloroethylene	TX	4700	10298121
trans-1,3-Dichloropropylene	TX	4685	10298121
Trichloroethene (Trichloroethylene)	TX	5170	10298121
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10298121
Vinyl chloride	TX	5235	10298121
Xylene (total)	TX	5260	10298121

Method EPA 625

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401

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Matrix: ***Non-Potable Water***

2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401

Matrix: ***Non-Potable Water***

Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401

Method EPA 625.1

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10300024

Texas Commission on Environmental Quality

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Matrix: ***Non-Potable Water***

1,2,4-Trichlorobenzene	TX	5155	10300024
1,2-Dichlorobenzene	TX	4610	10300024
1,2-Diphenylhydrazine	TX	6221	10300024
1,3-Dichlorobenzene	TX	4615	10300024
1,4-Dichlorobenzene	TX	4620	10300024
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10300024
2,3,4,6-Tetrachlorophenol	TX	6735	10300024
2,4,5-Trichlorophenol	TX	6835	10300024
2,4,6-Trichlorophenol	TX	6840	10300024
2,4-Dichlorophenol	TX	6000	10300024
2,4-Dimethylphenol	TX	6130	10300024
2,4-Dinitrophenol	TX	6175	10300024
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10300024
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10300024
2-Chloronaphthalene	TX	5795	10300024
2-Chlorophenol	TX	5800	10300024
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10300024
2-Methylphenol (o-Cresol)	TX	6400	10300024
2-Nitrophenol	TX	6490	10300024
3,3'-Dichlorobenzidine	TX	5945	10300024
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10300024
4-Chloro-3-methylphenol	TX	5700	10300024
4-Chlorophenyl phenylether	TX	5825	10300024
4-Methylphenol (p-Cresol)	TX	6410	10300024
4-Nitrophenol	TX	6500	10300024
Acenaphthene	TX	5500	10300024
Acenaphthylene	TX	5505	10300024
Anthracene	TX	5555	10300024
Benzidine	TX	5595	10300024
Benzo(a)anthracene	TX	5575	10300024

Matrix: ***Non-Potable Water***

Benzo(a)pyrene	TX	5580	10300024
Benzo(b)fluoranthene	TX	5585	10300024
Benzo(g,h,i)perylene	TX	5590	10300024
Benzo(k)fluoranthene	TX	5600	10300024
bis(2-Chloroethoxy)methane	TX	5760	10300024
bis(2-Chloroethyl) ether	TX	5765	10300024
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10300024
Butyl benzyl phthalate	TX	5670	10300024
Chrysene	TX	5855	10300024
Dibenz(a,h) anthracene	TX	5895	10300024
Diethyl phthalate	TX	6070	10300024
Dimethyl phthalate	TX	6135	10300024
Di-n-butyl phthalate	TX	5925	10300024
Di-n-octyl phthalate	TX	6200	10300024
Fluoranthene	TX	6265	10300024
Fluorene	TX	6270	10300024
Hexachlorobenzene	TX	6275	10300024
Hexachlorobutadiene	TX	4835	10300024
Hexachlorocyclopentadiene	TX	6285	10300024
Hexachloroethane	TX	4840	10300024
Indeno(1,2,3-cd) pyrene	TX	6315	10300024
Isophorone	TX	6320	10300024
Naphthalene	TX	5005	10300024
Nitrobenzene	TX	5015	10300024
n-Nitrosodiethylamine	TX	6525	10300024
n-Nitrosodimethylamine	TX	6530	10300024
n-Nitrosodi-n-butylamine	TX	5025	10300024
n-Nitrosodi-n-propylamine	TX	6545	10300024
n-Nitrosodiphenylamine	TX	6535	10300024
Pentachlorobenzene	TX	6590	10300024

Matrix: ***Non-Potable Water***

Pentachlorophenol	TX	6605	10300024
Phenanthrene	TX	6615	10300024
Phenol	TX	6625	10300024
Pyrene	TX	6665	10300024
Pyridine	TX	5095	10300024

Method EPA 632

Analyte	**AB**	**Analyte ID**	**Method ID**
Carbaryl (Sevin)	TX	7195	10108608

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162206

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606
Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606

Matrix: ***Non-Potable Water***

Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8151

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10183207
2,4-D	TX	8545	10183207
2,4-DB	TX	8560	10183207
Dalapon	TX	8555	10183207
Dicamba	TX	8595	10183207
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10183207
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183207
MCPA	TX	7775	10183207
MCPP	TX	7780	10183207
Pentachlorophenol	TX	6605	10183207
Silvex (2,4,5-TP)	TX	8650	10183207

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Matrix: ***Non-Potable Water***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

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Matrix: ***Non-Potable Water***

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802
Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802

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Matrix: ***Non-Potable Water***

Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

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Matrix: ***Non-Potable Water***

Method EPA 8270

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805

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Matrix: ***Non-Potable Water***

2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805

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Matrix: ***Non-Potable Water***

Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805

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Matrix: ***Non-Potable Water***

Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

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Matrix: ***Non-Potable Water***

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10196802

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method IDEXX Laboratories Colilert®

Analyte	**AB**	**Analyte ID**	**Method ID**
Escherichia coli (enumeration)	TX	2525	60002600

Method SM 2120 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Color	TX	1605	20223807

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Matrix: ***Non-Potable Water***

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	20045005

Method SM 2340 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total hardness as CaCO3	TX	1755	20046008

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	20048004

Method SM 2540 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-total (total solids)	TX	1950	20004608

Method SM 2540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-filterable (TDS)	TX	1955	20049803

Method SM 2540 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-nonfilterable (TSS)	TX	1960	20004802

Method SM 2540 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Residue-settleable	TX	1965	20005009

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	20065809

Method SM 3500-Fe D

Analyte	**AB**	**Analyte ID**	**Method ID**
Iron	TX	1070	20009603

Method SM 4500-Cl G

Analyte	**AB**	**Analyte ID**	**Method ID**
Total residual chlorine	TX	1940	20020604

Method SM 4500-CN^- E

Analyte	**AB**	**Analyte ID**	**Method ID**

Matrix: ***Non-Potable Water***

Total cyanide	TX	1645	20021209

Method SM 4500-CN$^-$ G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20021607

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20104603

Method SM 4500-NH3 F

Analyte	**AB**	**Analyte ID**	**Method ID**
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20023001

Method SM 4500-NH3 H

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20023409

Method SM 4500-O C

Analyte	**AB**	**Analyte ID**	**Method ID**
Oxygen, dissolved	TX	1880	20025201

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803

Method SM 4500-S2$^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125400

Method SM 4500-S2$^-$ F

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20126209

Method SM 4500-SO3$^-$ B

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfite	TX	2015	20026806

Method SM 5210 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Biochemical oxygen demand (BOD)	TX	1530	20027401

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Matrix: ***Non-Potable Water***

Carbonaceous BOD, CBOD	TX	1555	20027401

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20027809

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138209

Method SM 5540 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Surfactants - MBAS	TX	2025	20144405

Method SM 9222 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Total coliforms (enumeration)	TX	2500	20198009

Method SM 9222 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20037405

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

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Matrix: ***Solid & Chemical Materials***

Method EPA 1010

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10116606

Method EPA 1030

Analyte	**AB**	**Analyte ID**	**Method ID**
Ignitability	TX	1780	10117201

Method EPA 1311

Analyte	**AB**	**Analyte ID**	**Method ID**
TCLP	TX	849	10118806

Method EPA 1312

Analyte	**AB**	**Analyte ID**	**Method ID**
SPLP	TX	850	10119003

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053200
Chloride	TX	1575	10053200
Fluoride	TX	1730	10053200
Nitrate as N	TX	1810	10053200
Nitrate-nitrite	TX	1820	10053200
Nitrite as N	TX	1840	10053200
Sulfate	TX	2000	10053200

Method EPA 353.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Nitrate as N	TX	1810	10067604
Nitrate-nitrite	TX	1820	10067604
Nitrite as N	TX	1840	10067604

Method EPA 6010

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10155609
Antimony	TX	1005	10155609
Arsenic	TX	1010	10155609

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Matrix: ***Solid & Chemical Materials***

Barium	TX	1015	10155609
Beryllium	TX	1020	10155609
Boron	TX	1025	10155609
Cadmium	TX	1030	10155609
Calcium	TX	1035	10155609
Chromium	TX	1040	10155609
Cobalt	TX	1050	10155609
Copper	TX	1055	10155609
Iron	TX	1070	10155609
Lead	TX	1075	10155609
Magnesium	TX	1085	10155609
Manganese	TX	1090	10155609
Molybdenum	TX	1100	10155609
Nickel	TX	1105	10155609
Potassium	TX	1125	10155609
Selenium	TX	1140	10155609
Silver	TX	1150	10155609
Strontium	TX	1160	10155609
Thallium	TX	1165	10155609
Tin	TX	1175	10155609
Titanium	TX	1180	10155609
Vanadium	TX	1185	10155609
Zinc	TX	1190	10155609

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156419
Antimony	TX	1005	10156419
Arsenic	TX	1010	10156419
Barium	TX	1015	10156419
Beryllium	TX	1020	10156419

Matrix: ***Solid & Chemical Materials***

Cadmium	TX	1030	10156419
Calcium	TX	1035	10156419
Chromium	TX	1040	10156419
Cobalt	TX	1050	10156419
Copper	TX	1055	10156419
Iron	TX	1070	10156419
Lead	TX	1075	10156419
Magnesium	TX	1085	10156419
Manganese	TX	1090	10156419
Molybdenum	TX	1100	10156419
Nickel	TX	1105	10156419
Potassium	TX	1125	10156419
Selenium	TX	1140	10156419
Silver	TX	1150	10156419
Thallium	TX	1165	10156419
Vanadium	TX	1185	10156419
Zinc	TX	1190	10156419

Method EPA 7471

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10166208

Method EPA 8081

Analyte	**AB**	**Analyte ID**	**Method ID**
4,4'-DDD	TX	7355	10178606
4,4'-DDE	TX	7360	10178606
4,4'-DDT	TX	7365	10178606
Aldrin	TX	7025	10178606
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178606
alpha-Chlordane	TX	7240	10178606
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178606
Chlordane (tech.)	TX	7250	10178606
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178606

Matrix: ***Solid & Chemical Materials***

Dieldrin	TX	7470	10178606
Endosulfan I	TX	7510	10178606
Endosulfan II	TX	7515	10178606
Endosulfan sulfate	TX	7520	10178606
Endrin	TX	7540	10178606
Endrin aldehyde	TX	7530	10178606
Endrin ketone	TX	7535	10178606
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178606
gamma-Chlordane	TX	7245	10178606
Heptachlor	TX	7685	10178606
Heptachlor epoxide	TX	7690	10178606
Methoxychlor	TX	7810	10178606
Mirex	TX	7870	10178606
Toxaphene (Chlorinated camphene)	TX	8250	10178606

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802

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Matrix: ***Solid & Chemical Materials***

1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acetonitrile	TX	4320	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Allyl chloride (3-Chloropropene)	TX	4355	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704232-20-30

Pace Analytical Services, LLC - Dallas, TX

Expiration Date: 6/30/2020

400 West Bethany Drive, Suite 190
Allen, TX 75013-3714

Issue Date: 4/28/2020

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Benzene	TX	4375	10184802
Benzyl chloride	TX	5635	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184802
Ethyl acetate	TX	4755	10184802
Ethyl methacrylate	TX	4810	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Hexachloroethane	TX	4840	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methacrylonitrile	TX	4925	10184802
Methyl acetate	TX	4940	10184802

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Matrix: ***Solid & Chemical Materials***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl methacrylate	TX	4990	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
Pentachloroethane	TX	5035	10184802
Propionitrile (Ethyl cyanide)	TX	5080	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Dinitrobenzene	TX	6155	10185805

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Matrix: ***Solid & Chemical Materials***

1,3-Dichlorobenzene	TX	4615	10185805
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1,4-Dinitrobenzene	TX	6165	10185805
1,4-Naphthoquinone	TX	6420	10185805
1-Chloronaphthalene	TX	5790	10185805
1-Naphthylamine	TX	6425	10185805
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Acetylaminofluorene	TX	5515	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylaniline (o-Toluidine)	TX	5145	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805

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Matrix: ***Solid & Chemical Materials***

3-Methylphenol (m-Cresol)	TX	6405	10185805
3-Nitroaniline	TX	6465	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrobiphenyl	TX	6480	10185805
4-Nitrophenol	TX	6500	10185805
5,5-Diphenylhydantoin	TX	6215	10185805
5-Chloro-2-methylaniline	TX	5695	10185805
5-Nitroacenaphthene	TX	6455	10185805
5-Nitro-o-toluidine	TX	6570	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aminoazobenzene	TX	5535	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Azobenzene	TX	5562	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805

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Matrix: ***Solid & Chemical Materials***

Benzyl alcohol	TX	5630	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185805
Butyl benzyl phthalate	TX	5670	10185805
Carbazole	TX	5680	10185805
Chrysene	TX	5855	10185805
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Diethyl phthalate	TX	6070	10185805
Diethyl sulfate	TX	6080	10185805
Diethylstilbestrol	TX	6075	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Diphenylamine	TX	6205	10185805
Ethyl methanesulfonate	TX	6260	10185805
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachloropropene	TX	6295	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185805
Isophorone	TX	6320	10185805
Isosafrole	TX	6325	10185805
Mestranol	TX	6340	10185805
Methyl methanesulfonate	TX	6375	10185805

Matrix: ***Solid & Chemical Materials***

Methylphenols, total	TX	10313	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosomethylethylamine	TX	6550	10185805
n-Nitrosomorpholine	TX	6555	10185805
n-Nitrosopiperidine	TX	6560	10185805
n-Nitrosopyrrolidine	TX	6565	10185805
o-Anisidine	TX	5550	10185805
p-Cresidine	TX	5860	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Safrole	TX	6685	10185805

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total cyanide	TX	1645	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10196802

Matrix: ***Solid & Chemical Materials***

pH	TX	1900	10196802

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805

Method EPA 9050

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	10198808

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9065

Analyte	**AB**	**Analyte ID**	**Method ID**
Total phenolics	TX	1905	10200405

Method EPA 9095

Analyte	**AB**	**Analyte ID**	**Method ID**
Paint Filter Liquids Test	TX	10312	10204009

Method EPA 9250

Analyte	**AB**	**Analyte ID**	**Method ID**
Chloride	TX	1575	10207202

Method SM 9221 C / 9221 E

Analyte	**AB**	**Analyte ID**	**Method ID**
Fecal coliforms (enumeration)	TX	2530	20195806

Method TCEQ 1005

Analyte	**AB**	**Analyte ID**	**Method ID**

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Matrix: ***Solid & Chemical Materials***

Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Appendix F:

Raw Sampling Data

Atkins 2020 Regional Spreadsheet Q1

Monitoring Data Form

				Composite																Grab			
Station ID	**COG ID**	**Storm ID**	**Sampling Date**	**TDS (mg/L)**	**TSS (mg/L)**	**BOD (mg/L)**	**COD (mg/L)**	**Nitrogen Total (mg/L)**	**Nitrate N (mg/L)**	**Ammonia N (mg/L)**	**Ortho-phosphate (mg/L)**	**Phosphorus Dissolved (mg/L)**	**Phosphorus Total (mg/L)**	**Atrazine (µg/L)**	**Arsenic Total (mg/L)**	**Chromium Total (mg/L)**	**Copper Total (mg/L)**	**Lead Total (mg/L)**	**Zinc Total (mg/L)**	**Oil and Grease (mg/L)**	**Spec. Cond. (µS/cm)**	**pH (su)**	***E. coli* (MPN/100 mL)**
AR2001	AR2001		1/10/2020	877 R1	3.8	< 2.0	< 10	0.47	0.11	< 0.028	< 0.020	< 0.018	0.049 J	0.06 J	0.0010	< 0.00051	< 0.00090	< 0.00014	0.013	1.2 J	914	8.2	131.4
AR2002	AR2002		1/10/2020	320	72.2	4.9 B2	110	0.71	0.23	0.064 J	0.046	0.036 J	0.26	0.230	0.0012	0.0013 J	0.0030	0.0013	0.018	< 0.42	814	8.5	1413.6
GA2001	GA2001		1/10/2020	471	158	6.3	15.6 J	4.6	3.6	0.082 J	0.065	0.24	0.27	0.134	0.0031	0.0020 J	0.0034	0.0014	0.012	< 0.35	1010	7.45	2489
GA2002	GA2002		1/10/2020	705	182	106	217	10.2	< 0.025	7.6	0.13	0.025 J	< 0.018	< 0.120	0.018	0.0026 J	0.0046	0.0016	0.014	3.9 J	1440	7.00	512
GA2003	GA2003		1/10/2020	462	21.6	< 2.0	13.4 J	6.2	4.8	0.19	0.050	0.057	0.12	0.164	0.00092	0.00060 J	0.0021	0.00017 J	0.0068	3.1 J	968	8.3	250
IR2001	IR2001		1/10/2020	232	349	2.0 B2	15.6 J	1.2	0.31	0.086 J	0.094	0.040 J	0.28	1.65	0.0021	0.0022 J	0.010	0.0042	0.075	0.56 J	667	8.6	2419.6
IR2002	IR2002		1/16/2020	111	147	3.4 R6	26.3 J	1.5	0.51	0.13	0.097	0.082	0.31	< 0.100	0.0027	0.0091	0.0085	0.0039	0.041	< 0.40	402	9.2	10462
MS2001	MS2001		1/16/2020	336	41.3	3.5	17.7 J	0.58	0.11	< 0.028	< 0.020	< 0.018	0.099	0.06 J	0.0011	0.0017 J	0.0032	0.0017	0.013	< 0.40	616	8.5	59.1
MS2002	MS2002		1/22/2020	269	45.5	3.8	26.3 J	0.94	0.51	0.031 J	0.042	0.042 J	0.12	0.411	0.0019	0.0010 J	0.0027	0.0012	0.018	< 0.36	640	8.5	> 2419.6
PL2001	PL2001		1/22/2020	385	37.5	< 2.0	< 10	2.6	2.0	< 0.028	< 0.020	< 0.018	0.21	0.044 J	0.00080	0.00062 J	0.0014 J	0.00026 J	0.0095	< 0.39	636	8.38	1413.6
PL2002	PL2002		1/22/2020	432	4.7	< 2.0	19.9 J	3.2	2.1	0.032 J	< 0.020	< 0.018	0.051	0.065 J	0.00079	0.00057 J	0.0016 J	< 0.00014	0.0060	< 0.36	805	8.41	154.2 D6
NT2001	NT2001		1/28/2020	90.0	115	5.4 B2, D6	15.6 J	1.2	0.55	< 0.028	0.079	0.080	0.25	< 0.100	0.0023	0.0084	0.0081	0.0043	0.052	< 0.38	448	8.8	631 D6
NT2002	NT2002		1/28/2020	147	95.4	2.4 B2	22.0 J	1.0	0.32	0.31	0.050	0.036 J	0.20	0.09 J	0.0019	0.0019 J	0.0062	0.0040	0.049	1.6 J	321	8.3	1413.6 D6

Atkins 2020 Regional Spreadsheet

Monitoring Data Form Q2

				Composite																Grab			
Station ID	**COG ID**	**Storm ID**	**Sampling Date**	**TDS (mg/L)**	**TSS (mg/L)**	**BOD (mg/L)**	**COD (mg/L)**	**Nitrogen Total (mg/L)**	**Nitrate N (mg/L)**	**Ammonia N (mg/L)**	**Ortho-phosphate (mg/L)**	**Phosphorus Dissolved (mg/L)**	**Phosphorus Total (mg/L)**	**Atrazine (µg/L)**	**Arsenic Total (mg/L)**	**Chromium Total (mg/L)**	**Copper Total (mg/L)**	**Lead Total (mg/L)**	**Zinc Total (mg/L)**	**Oil and Grease (mg/L)**	**Spec. Cond. (µS/cm)**	**pH (su)**	***E. coli* (MPN/100 mL)**
AR2001	AR2001		4/11/2020	601	122	7.6 R6	< 10	2.1	0.43	0.19	0.027 J	0.041 J	0.25	0.914	0.0050	0.0031	0.0040	0.0024	0.039	< 0.37	1045	6.5	279.0
AR2002	AR2002		4/11/2020	578	6.8	2.1	< 10	0.81	0.38	0.13 B	0.039 J	0.048 J	0.066	0.892	0.00085	0.00053 J	0.0026	0.00027 J	0.010	1.8 J	910	8.2	331 D6
GA2001	GA2001		4/12/2020	482	14.2	< 2.0	< 10	7.4	6.3 BL	0.059 J,B	0.070	0.069	0.095	0.300	0.0012	0.00057 J	< 0.00090	0.00038 J	0.0046 J	< 0.38	942	8.38	173
GA2002	GA2002		4/12/2020	549	70.0	9.0	< 10	4.7	0.78	0.82	0.22	< 0.018	0.67	0.051 J	0.024	0.0017 J	0.0024	0.0015	0.021	< 0.35	1031	7.21	120.0
GA2003	GA2003		4/12/2020	476	21.5	< 2.0	14.1 J	1.2	7.1 BL	0.076 J	0.15	0.13	0.19	0.226	0.0013	0.0010 J	0.0027	0.00053	0.0091	1.4 J	882	8.33	464
IR2001	IR2001		4/19/2020	476	21.3	< 2.0	< 10	1.2	0.76	0.12 B	< 0.020	0.047 J	0.038 J	0.081 J	0.0014	0.0019	0.0050	0.00060	0.025	3.8 J	814	8.7	7701
IR2002	IR2002		4/28/2020	199	28.9	4.3	< 10	1.6	0.77	0.16 B	< 0.020	0.26 1t,TW	0.091	0.076 J	0.0013	0.0038	0.0061	0.0015	0.035	0.88 J	678	8.4	3448
MS2001	MS2001		4/28/2020	341	7.1	2.0 H2	17.7 J	1.2	0.15 BL	0.071 J,B	< 0.020	< 0.018	0.056	0.806	0.0013	0.00062 J	0.00094 J	0.00031 J	0.0028 J	< 0.40	593	8.5	487
MS2002	MS2002		4/28/2020	258	63.8	4.3	13.5 J	2.4	0.72 BL	0.088 J	0.12	0.11	0.22	1.96	0.0027	0.0022 J	0.0055	0.0022	0.019	< 0.36	632	8.4	8664
PL2001	PL2001		4/28/2020	269	203	3.4 R6	< 10	3.7	1.2 BL	0.11	0.073	0.019 J	0.65	0.602	0.0041	0.012	0.014	0.0060	0.054	< 0.38	517	8.32	8664
PL2002	PL2002		4/3/2020	376	21.5	< 2.0	< 10	2.1	1.6 BL	< 0.028	0.050	< 0.018	0.24	0.338	0.0021	0.0038	0.0047	0.0023	0.017	< 0.35	776	8.31	884
NT2001	NT2001		4/3/2020	177	77.7	10	< 10	3.5	1.1	0.37	0.051	0.085	0.19	0.172	0.0019	0.0062	0.0089	0.0024	0.069	0.80 J	719	8.4	12997.0
NT2002	NT2002		4/3/2020	216	108	8.0	< 10	1.5	0.19	0.15	< 0.020	0.032 J	0.22	0.210	0.0037	0.0040	0.0023	0.0036	0.061	1.1 J	114	9.0	959.0

Atkins 2020 Regional Spreadsheet Q3

Monitoring Data Form

				Composite																Grab			
Station ID	**COG ID**	**Storm ID**	**Sampling Date**	**TDS (mg/L)**	**TSS (mg/L)**	**BOD (mg/L)**	**COD (mg/L)**	**Nitrogen Total (mg/L)**	**Nitrate N (mg/L)**	**Ammonia N (mg/L)**	**Ortho-phosphate (mg/L)**	**Phosphorus Dissolved (mg/L)**	**Phosphorus Total (mg/L)**	**Atrazine (µg/L)**	**Arsenic Total (mg/L)**	**Chromium Total (mg/L)**	**Copper Total (mg/L)**	**Lead Total (mg/L)**	**Zinc Total (mg/L)**	**Oil and Grease (mg/L)**	**Spec. Cond. (µS/cm)**	**pH (su)**	***E. coli* (MPN/100 mL)**
AR2001	AR2001		7/6/2020	150	159	7.2	35.6	3.1	0.52	0.15	0.13 M1	0.12 M1, R1	0.41	0.291	0.0027	0.0048	0.0098	0.0043	0.049	< 0.36	523	7.9	12033.0
AR2002	AR2002		7/28/2020	650	9.9	2.6 B3, L2	< 10	0.41	0.14	< 0.028	< 0.020	< 0.015	0.024 J	< 0.100	0.00092	0.00067 J	0.0012 J	0.00032 J	0.0042 J	1.7 J	990	7.9	52.0
GA2001	GA2001		7/28/2020	490	32.6	< 2.0 B3, L2	13.3 J	9.5	8.6	0.078 J	0.31	0.32	0.36	0.066 J	0.0019	0.0020 J	0.0039	0.0011	0.020	0.71 J	844	8.17	272.0 D6
GA2002	GA2002		8/16/2020	449	135	8.4	24.7 J	9.1	8.0	0.15	0.39	0.46	0.52	0.083 J	0.0027	0.0046	0.0062	0.0028	0.027	1.8 J, M1	889	8.28	9208.0
GA2003	GA2003		8/16/2020	561	39.6	5.6	< 10	12.1	11.2	0.087 J	0.46	0.45	0.55	0.091 J	0.0021	0.0018 J	0.0044	0.0015	0.026	0.39 J	1010	8.05	97.0 D6
IR2001	IR2001		7/28/2020	341	45.0	6.3 B3, L2	< 10	1.6	0.61	0.13	0.055	0.066	0.13	< 0.100	0.0030	0.0041	0.0081	0.0021	0.044	1.8 J	1030	8.8	331.0
IR2002	IR2002		7/28/2020	129	542 D6	8.7 B3, L2	< 10	1.6	0.42	0.10	0.15	0.088	0.31	< 0.100	0.0060	0.016	0.012	0.0054	0.052	3.2 J	202	8.8	4611.0
MS2001	MS2001		7/28/2020	216	1010	5.2 B3, L2	138	4.2	0.27	0.079 J	0.13	0.058	0.63 D3	< 0.100	0.0060	0.022	0.020	0.022	0.13	1.5 J	1156	7.20	2481.0
MS2002	MS2002		7/28/2020	140	317	10.9 B3, L2	< 10	1.4	0.41	0.079 J	0.091	0.076	0.24	0.116	0.0039	0.0059	0.0089	0.0057	0.042	3.0 J	412	7.68	464.0
PL2001	PL2001		8/16/2020	223	1440	11.8 R6	127	4.7	0.64 M1	0.32	0.048	0.31	0.94	0.214	0.0086	0.027	0.029	0.017	0.12	< 0.35	751	7.97	2064.0
PL2002	PL2002		8/30/2020	140	796	6.5 B3	< 10	3.3	0.51	0.15	0.34	0.045 J	1.2	0.189	0.0091	0.029	0.021	0.016	0.090	1.3 J	526	7.61	24196.0 D6
NT2001	NT2001		7/28/2020	153	1570	16.8 B3, L2	31.5 J	6.6	0.86	0.50	0.080 M1	0.19	0.85 D3	< 0.100	0.0063	0.027	0.042	0.022	0.30	3.2 J	286	8.9	> 24196.0
NT2002	NT2002		7/28/2020	131	88.8	6.5 B3, L2, R6	11.0 J	1.9	0.77	0.12	0.041	0.074	0.19	< 0.100	0.0025	0.0052	0.0080	0.0023	0.053	2.4 J	233	8.3	1956.0

Atkins 2020 Regional Spreadsheet Q4

Monitoring Data Form

				Composite																Grab			
Station ID	COG ID	Storm ID	Sampling Date	TDS (mg/L)	TSS (mg/L)	BOD (mg/L)	COD (mg/L)	Nitrogen Total (mg/L)	Nitrate N (mg/L)	Ammonia N (mg/L)	Ortho-phosphate (mg/L)	Phosphorus Dissolved (mg/L)	Phosphorus Total (mg/L)	Atrazine (µg/L)	Arsenic Total (mg/L)	Chromium Total (mg/L)	Copper Total (mg/L)	Lead Total (mg/L)	Zinc Total (mg/L)	Oil and Grease (mg/L)	Spec. Cond. (µS/cm)	pH (su)	*E. coli* (MPN/100 mL)
AR2001	AR2001		10/23/2020	334 R1	211	46.2	93.0	4.9	0.48	0.29	0.11	0.077	0.74	0.239	0.016	0.0030 J	0.014	0.0044	0.049	1.1 J	930	7.9	161.0
AR2002	AR2002		10/23/2020	271	72.5	24.0	50.3	2.1	0.55	0.068 J	0.19	0.15	0.30	0.425	0.0020	0.0025 J	0.010	0.0024	0.059	< 0.35	734	8.2	10.0
GA2001	GA2001		10/23/2020	492	< 2.8	< 2.0 H1	30.9 J	9.3 H1	7.7 H1	0.60	0.22 H1	0.22	0.27	< 0.100	0.00097	< 0.00051	0.0030	< 0.00014	0.0081	0.85 J	909	8.32	< 10.0
GA2002	GA2002		10/23/2020	427	115	11.7 R6	24.7 J	6.7	5.8	0.057 J	0.31	0.26	0.34	0.085 J	0.0018	0.0012 J	0.0051	0.00092	0.017	2.3 J	807	8.23	2382.0
GA2003	GA2003		10/23/2020	476	18.9	3.0 H1	26.5 J	8.4 H1	7.2 H1	0.20	0.19 H1	0.19	0.26	< 0.100	0.0012	0.00097 J	0.0026	0.00040 J	0.011	0.94 J	866	8.38	146.0
IR2001	IR2001		10/23/2020	292	148	6.3	14.0 J	1.1	0.41	0.064 J	0.16	0.065	0.22	< 0.105	0.0082	0.0059	0.012	0.0037	0.044	1.3 J	299	9.2	8164.0
IR2002	IR2002		10/23/2020	251	23.8	7.8	33.1 J	1.7	1.2	0.063 J	0.089	0.11	0.16	< 0.105	0.0017	0.019	0.0066	0.0011	0.021	1.7 J	490	8.6	323.0
MS2001	MS2001		10/23/2020	317	38.5	3.9 H1	30.9 J	0.15 H1	0.15 H1	< 0.028	0.020 J, H1	0.029 J	0.077	< 0.100	0.0013	0.0022 J	0.0048	0.00090	0.015	1.1 J	459	8.4	< 10.0
MS2002	MS2002		12/11/2020	342	4.4	3.6 H1	35.3	0.22 H1	0.22 H1	< 0.028	0.020 J, H1	0.046 J	0.042 J	< 0.100	0.0017	0.00062 J	0.0030	0.00022 J	0.0053	6.3	609	7.9	< 10.0
PL2001	PL2001		12/11/2020	181	693	24.9 R6	26.8 J	2.9	0.66	0.13	0.32	0.073	0.69	0.142	0.0073	0.019	0.021	0.011	0.088	2.0 J	719	8.15	7270.0
PL2002	PL2002		12/11/2020	255	1120	11.8	24.7 J	3.8	0.70	0.089 J	0.28	0.053	1.7	0.095 J	0.0095	0.023	0.025	0.019	0.11	< 0.35	NA	8.34	1354.0
NT2001	NT2001		12/11/2020	77.0	55.2	8.5	39.6	1.7	0.46	0.078 J	0.13	0.12	0.18	< 0.100	0.0028 B	0.0036	0.0091	0.0026	0.065	4.2 J	355	7.91	> 24196.0
NT2002	NT2002		12/11/2020	160	58.8	9.5	37.5	1.7	0.65	0.12	0.12	0.078	0.14	< 0.100	0.0024 B	0.0039	0.0090	0.0022	0.051	0.50 J	176.3	8.93	2359.0

Chemical Monitoring Data Form

		Storm Summary										Composite																Grab			
Station ID	Sampling Date	Storm Duration (hrs)	Rainfall Total (in)	Antecedent Dry Period (hrs)	1st Aliquot Collected	Last Aliquot Collected	# Aliquots Collected	Sample Volume (gal)	Ambient Air Temp (ºF)	Water Temp (ºF)	Sample Comments	TDS (mg/L)	TSS (mg/L)	BOD (mg/L)	COD (mg/L)	Nitrogen Total (mg/L)	Phosphorus Dissolved (mg/L)	Phosphorus Total (mg/L)	Orthophosphate (mg/L)	Ammonia Nitrogen (mg/L)	Nitrate Nitrogen (mg/L)	Atrazine (µg/L)	Arsenic Total (mg/L)	Chromium Total (mg/L)	Copper Total (mg/L)	Lead Total (mg/L)	Zinc Total (mg/L)	Oil and Grease (mg/L)	Spec. Cond. (uS/cm)	pH Field (su)	E. coli (MPN/100 mL)
TCTR-100-1	1/10/2020	9.0	1.28	312	5:15 PM	6:19 PM	5	4	69.8	65.8		311	190	4.8	<35.0	1.2	0.071	0.22	0.046	<0.10	0.62	<0.10	<0.020	<0.0070	<0.020	0.018	0.052	<4.9	796	7.81	1986.3
TCTR-200-1	1/10/2020	9.0	1.28	312	5:20 PM	6:39 PM	5	4	69.8	65.7		355	168	4.4	<35.0	1.4	0.052	0.23	<0.040	<0.10	0.66	<0.10	<0.020	<0.0070	<0.020	0.019	0.060	<4.9	799	7.72	1986.3
TCTR-300-1	1/10/2020	9.0	1.28	312	5:50 PM	6:35 PM	5	4	69.8	63.9		512	171	5.6	<35.0	1.6	<0.050	0.24	<0.040	0.21	0.70	<0.10	<0.020	0.0080	<0.020	0.017	0.082	<4.9	790	7.61	1986.3
HTC-100-1	2/10/2020	3.5	0.16	319	6:47 PM	8:02 PM	5	4	42.8	51.6		240	178	10.8	<35.0	2.8	0.65	0.42	0.12	0.52	0.52	<0.098	<0.020	0.0082	0.023	0.023	0.12	<5.1	237	8.11	>2419.6
HTC-200-1	2/10/2020	3.5	0.16	319	6:52 PM	8:18 PM	5	4	42.8	51.1		417	108	7.3	<0.020	2.7	0.059	0.24	<0.040	0.20	1.7	0.20	<0.020	<0.0070	<0.020	0.02	0.093	<5.0	780	8.00	1732.9
HTC-300-1	2/10/2020	3.5	0.16	319	6:37 PM	6:02 PM	5	4	42.8	50.0		301	83	11.2	<35.0	1.5	0.093	0.14	<0.040	0.20	0.94	<0.098	<0.020	0.0084	<0.020	0.024	0.081	<5.1	721	8.05	>2419.6
TCTR-100-2	4/12/2020	2.5	0.40	320	5:50 AM	7:15 AM	5	4	73.4	67.8		967	67	6.2	<35.0	1.6	<0.050	<0.050	<0.040	<0.10	1.1	<0.10	<0.020	<0.0070	<0.020	<0.0010	<0.025	<5.2	1201	7.45	>2419.6
TCTR-200-2	4/12/2020	2.5	0.40	320	5:55 AM	7:17 AM	5	4	71.6	68.2		289	83	4.1	<35.0	0.30	<0.050	0.083	<0.040	0.30	1.9	<0.10	<0.020	<0.0070	<0.020	<0.010	<0.025	<5.0	630	7.45	>2419.6
TCTR-300-2	4/12/2020	2.5	0.40	320	5:56 AM	7:20 AM	5	4	69.8	67.5		342	92	3.8	<35.0	0.57	<0.050	0.10	<0.050	0.44	0.57	<0.098	<0.020	<0.0070	<0.020	<0.010	0.079	<5.2	470	7.50	2419.6
TCTR-100-2 (Field Dup)	4/12/2020	2.5	0.40	320	5:50 AM	7:15 AM	5	4	73.4	19.6		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1208	7.89	>2419.6
HTC-100-2	4/19/2020	1.0	0.28	171	11:19 AM	12:38 PM	5	4	72.0	63.9		495	63	5.6	<35.0	2.8	0.28	0.29	0.14	0.30	1.5	0.16	<0.020	<0.0070	<0.020	<0.010	<0.025	<5.1	997	7.46	261.3
HTC-200-2	4/19/2020	1.0	0.28	171	11:20 AM	12:38 PM	5	4	72.0	66.9		495	21	5.6	<35.0	2.4	<0.050	0.13	0.048	0.24	1.6	0.16	<0.020	<0.0070	<0.020	<0.010	<0.025	<5.1	862	7.79	261.3
HTC-300-2	4/19/2020	1.0	0.28	171	12:10 PM	1:54 PM	5	4	72.0	68.9		528	50	5.0	<35.0	2.0	<0.050	0.26	0.061	0.16	1.2	0.13	<0.020	<0.0070	<0.020	0.023	0.039	<5.0	825	8.03	1553.1
TCTR-100-3	7/28/2020	3.5	0.44	141	12:53 PM	2:13 PM	5	4	77.0	79.7		387	143	11.7	<35.0	2.5	<0.050	0.20	<0.040	<0.10	0.61	<0.10	<0.020	<0.0070	<0.020	0.010	0.041	<5.2	1050	7.59	4884
TCTR-200-3	7/28/2020	3.5	0.44	141	1:11 PM	2:32 PM	5	4	77.0	79.3		263	163	9.5	<35.0	3.7	<0.050	0.23	<0.040	0.12	0.59	<0.10	<0.020	<0.0070	<0.020	0.011	0.07	<5.2	614	7.98	3448
TCTR-300-3	7/28/2020	3.5	0.44	141	1:02 PM	2:18 PM	5	4	75.2	79.9		155	118	4.9	<35.0	2.6	0.066	0.21	0.06	0.13	0.42	<0.10	<0.020	<0.0070	<0.020	<0.010	0.071	<5.0	278	8.15	6488
HTC-100-3	8/30/2020	2.0	1.84	319	6:02 AM	7:21 AM	5	4	73.0	78.3		128	129	7.1	<35.0	1.9	0.12	0.29	0.13	0.26	0.90	<0.10	<0.020	<0.0070	<0.020	0.013	0.037	<5.1	707	7.80	1145
HTC-200-3	8/30/2020	2.0	1.84	319	6:03 AM	7:31 AM	5	4	73.2	79.3		202	90	12.9	<35.0	2.2	0.059	0.23	0.078	0.21	2.2	<0.10	<0.020	<0.0070	<0.020	0.018	0.053	<5.0	636	7.55	594
HTC-300-3	8/30/2020	2.0	1.84	319	5:59 AM	7:41 AM	5	4	73.2	80.2		335	68	7.1	<35.0	1.3	0.054	0.2	0.041	<0.10	0.19	<0.10	<0.020	<0.0070	<0.020	0.015	0.042	<5.1	523	7.84	862
HTC-100-3 (Field Dup)	8/30/2020	2.0	1.84	319	6:02 AM	7:21 AM	5	4	73.0	78.6		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	703	7.80	1086
TCTR-100-4	10/23/2020	4.0	0.84	1035	7:55 AM	9:19 AM	5	4	64.0	70.2		589	161	35.4	95.2	1.6	<0.050	0.17	0.13	<0.10	0.73	<0.10	<0.020	0.0093	<0.020	0.010	0.067	<5.0	659	6.46	10462
TCTR-200-4	10/23/2020	4.0	0.84	1035	7:59 AM	9:24 AM	5	4	64.0	68.0		352	222	22.6	88.8	1.4	<0.050	0.32	0.20	0.11	0.54	<0.10	<0.020	0.0093	<0.020	0.018	0.088	<5.1	140.3	8.36	>24196
TCTR-300-4	10/23/2020	4.0	0.84	1035	7:54 AM	9:21 AM	5	4	64.0	67.1		100	182	10.3	52.5	0.44	0.11	0.26	0.18	0.14	0.41	<0.10	<0.020	0.035	<0.020	0.013	0.083	<5.0	204.2	9.08	4352
HTC-100-4	12/11/2020	1.0	0.16	297	9:52 AM	11:15 AM	5	4	61.0	59.7		478	40	6.2	<35.0	<0.50	0.063	0.12	0.074	0.12	2.1	<0.10	<0.020	<0.0070	<0.020	<0.010	<0.025	<5.1	716	7.34	488
HTC-200-4	12/11/2020	1.0	0.16	297	9:50 AM	11:18 AM	5	4	63.0	60.1		505	53	7.0	37.5	1.9	<0.050	0.11	0.072	<0.10	1.9	<0.10	<0.020	<0.0070	<0.020	<0.010	0.032	<5.0	693	7.98	2,419.6
HTC-300-4	12/11/2020	1.0	0.16	297	9:55 AM	11:24 AM	5	4	63.0	58.8		513	82	5.2	37.5	1.5	<0.050	0.11	0.064	<0.10	1.5	<0.10	<0.020	<0.0070	<0.020	0.018	0.036	<5.1	784	7.89	>2419.6

2020 Fort Worth Regional Wet Weather Characterization Plan

Monitoring Data Spreadsheet

Station ID	Sampling Date	Rainfall Total (in)	Ambient Air Temp (°F)	TDS (mg/L)	TSS (mg/L)	BOD (mg/L)	COD (mg/L)	Nitrogen Total (mg/L)	Ammonia Nitrogen (mg/L)	Phosphorus Dissolved (mg/L)	Phosphorus Total (mg/L)	Atrazine (ug/L)	Nitrate (mg/L)	Nitrite (mg/L)	Orthophosphate (mg/L)	Arsenic Total (mg/L)	Chromium Total (mg/L)	Copper Total (mg/L)	Lead Total (mg/L)	Zinc Total (mg/L)	Oil and Grease (mg/L)	Spec. Cond. (uS/cm)	pH (su)	E. coli (MPN/100 mL)	Total coliforms (MPN/100mL)
LFC1	5/Aug/20	0	81.9	888	<2.5	<2.0	<35.0	0.79	<0.10	<0.05	<0.05	<0.1	0.16	<0.05	<0.04	3.2	<3.0	<2.0	<0.5	<5.0	<5.0	850	7.48	201.4	>2419.6
LFC3	5/Aug/20	0	82.4	179	3.5	<2.0	<35.0	0.87	<0.10	<0.05	<0.05	<0.1	0.19	<0.05	<0.04	3	<3.0	<2.0	<0.5	5.1	<5.0	680	7.86	201.4	>2419.6
BFC1	6/Aug/20	0	96.4	264	<2.0	<2.0	<35.0	0.41	<0.10	<0.05	<0.05	0.1	<0.05	<0.05	<0.04	2	<3.0	<2.0	<0.5	<5.0	<5.0	480	7.84	1	>2419.6
BFC3	6/Aug/20	0	84.7	306	<2.0	<2.0	<35.0	1.20	<0.10	<0.05	<0.05	0.1	0.69	<0.05	<0.04	1.9	<3.0	<2.0	<0.5	5	<5.0	590	8.28	1553.1	>2419.6
LFC1	23/Oct/20	0.4	61	163	72.5	16.3	65.3	2.60	0.14	0.0830	0.31	<0.1	1.1	<0.05	0.18	2.2	3.4	8.7	2.4	47.2	<5.0	290	8.35	24196	>24196.0
LFC3	23/Oct/20	0.4	61	228	118	9	39.6	0.59	<0.10	<0.05	0.12	<0.1	0.32	<0.05	0.087	2.5	3	6.2	4.7	42.2	<5.0	580	8.04	108	24196
BFC1	11/Dec/20	0.24	60	246	4.5	<2.0	<35.0	ND	<0.10	<0.05	<0.05	0.1	<0.05	<0.05	<0.04	1.1	<3.0	<2.0	<0.5	<5.0	<5.0	420	7.99	47.3	2419.6
BFC3	11/Dec/20	0.24	60	287	13.1	5.6	41.9	0.29	0.13	<0.05	0.056	0.2	0.27	<0.05	<0.04	1.6	<3.0	3.3	<0.5	12.9	<5.0	530	8.43	>2419.6	>2419.6

Appendix G:

Sample Collection Reports

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100068194
City of Arlington 2020

Sample Collection Report
Event Date: January 10, 2020

Storm Summary

Storm description: Light rain moving from southwest to northeast.

Rain event start time and date: 1200 01/10/20 Rainfall total: 0.20 in
Rain event end time and date: 1400 01/10/20 Peak 1-hr rate: 0.12 in/hr

Rainfall station: Rush Creek @ West Sublett Road (6650)
Antecedent dry period: 310 hrs

Comments: Antecedent dry period determined by Rush Creek @ West Sublett Road (6650) from https://gptx.onerain.com/home.php.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Flow start time and date: 1440 01/10/20 Time first aliquot collected: 1458 01/10/20
Flow end time and date: 1920 01/10/20 Time last aliquot collected: 1708 01/10/20

Peak depth: 0.453 ft Aliquots collected: 6
Average depth: 0.334 ft Total sample volume: 3.0 gal

Comments: Sampler started automatically; however, no liquid was detected. The sampler was stopped and then started manually at 1458 01/10/20 and properly collected the sample.

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date: 1810 01/10/20 Rainfall total: 1.52 in
Rain event end time and date: 2310 01/10/20 Peak 1-hr rate: 0.48 in/hr

Rainfall station: Rush Creek @ Woodland Park (6610)
Antecedent dry period: 315 hrs

Comments: Antecedent dry period determined by Rush Creek @ Woodland Park (6610) from https://gptx.onerain.com/home.php.

AR 2002
Station location description: Rush Creek @ Woodland Park Blvd.

Flow start time and date: 1910 01/10/20 Time first aliquot collected: 1925 01/10/20
Flow end time and date: 1800 01/11/20 Time last aliquot collected: 2131 01/10/20

Peak depth:	5.162 ft	Aliquots collected:	6
Average depth:	1.985 ft	Total sample volume:	3.5 gal

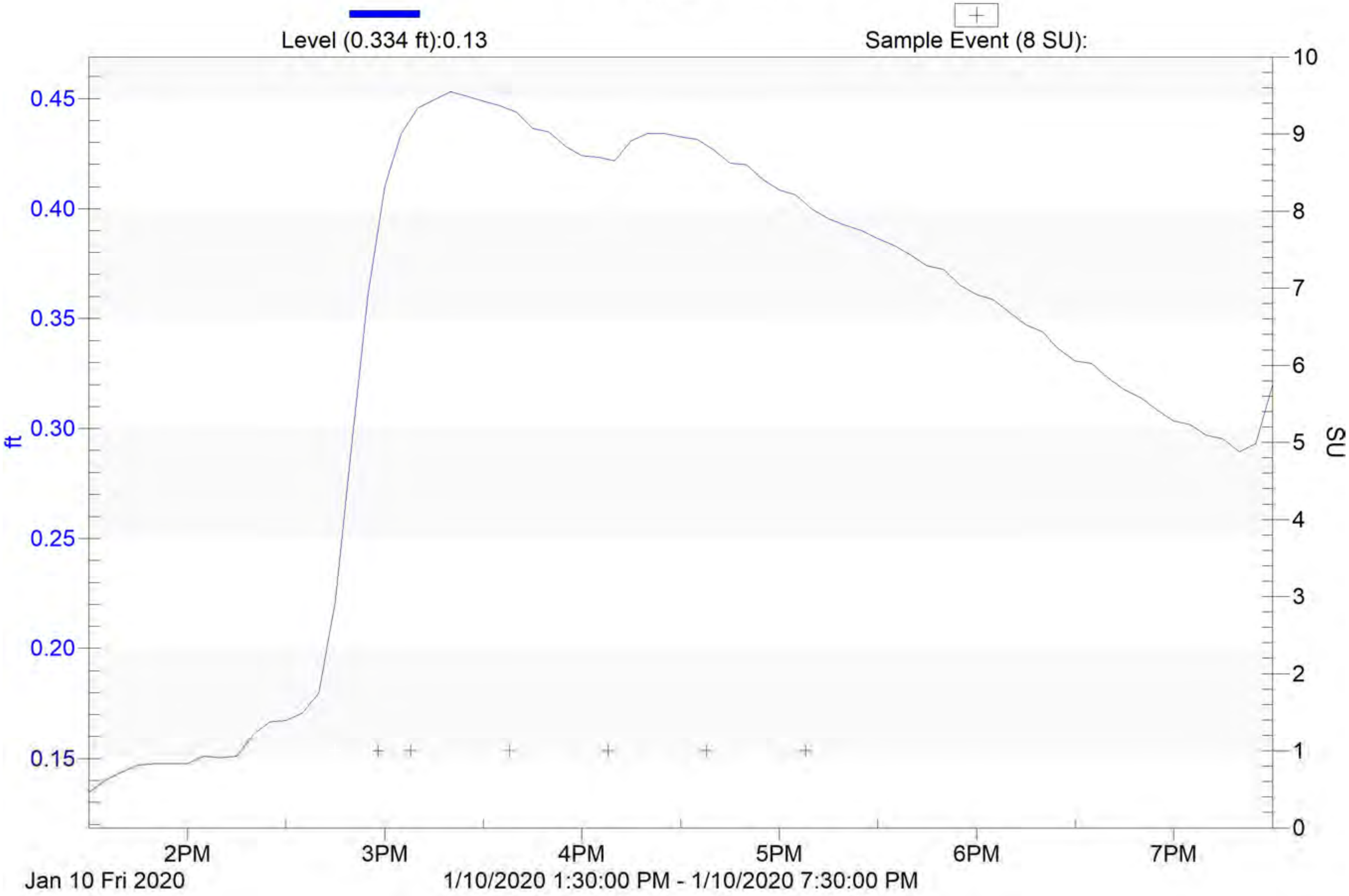
Comments: None

Prepared By: Ryan Deal Date: 2-24-20

Checked By: Charles P Goddy Date: 02/25/2020

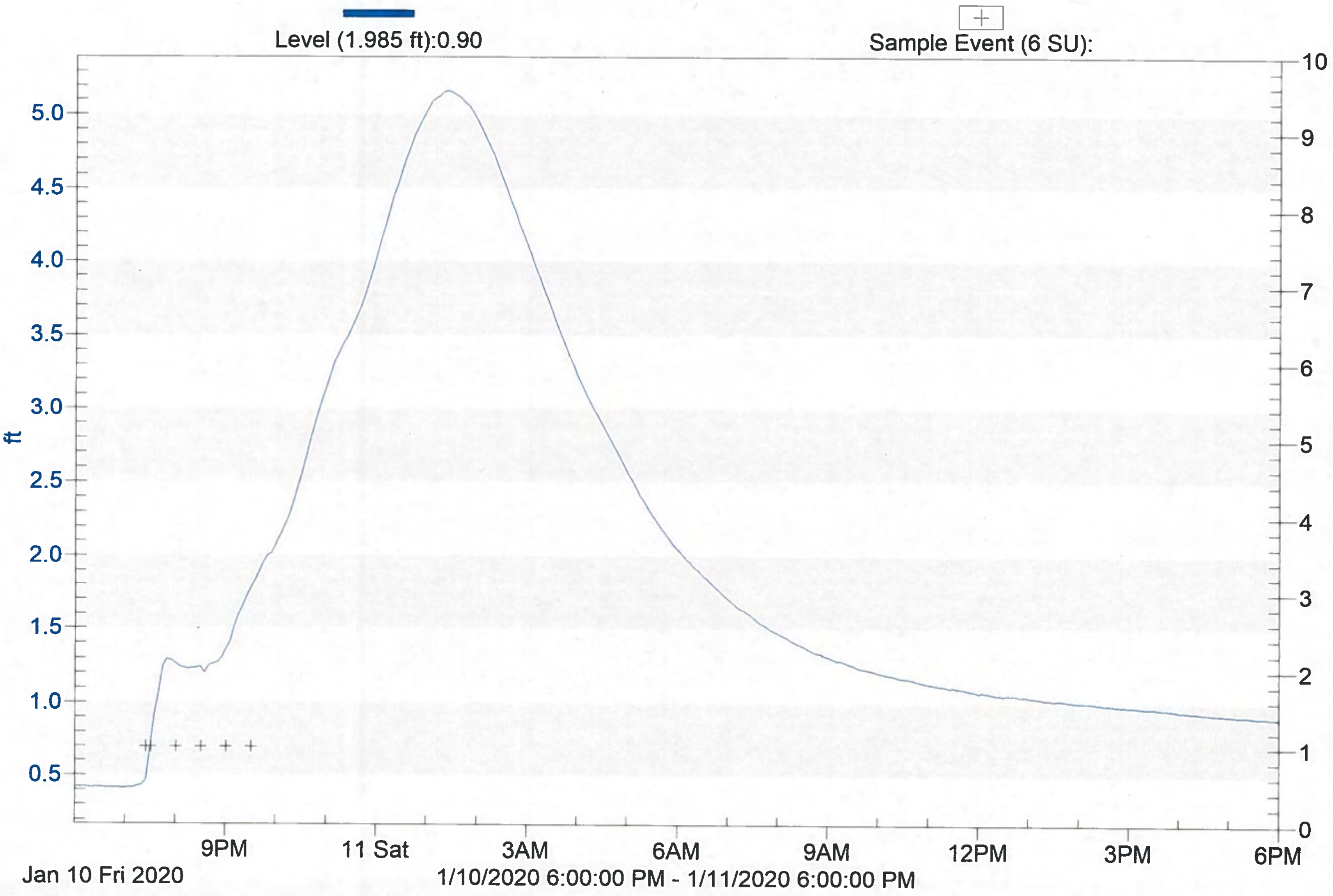
Arlington Rush Creek

AR2001-1



Arlington Rush Creek

AR2002-1



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF ARLINGTON 2020

Storm Event: 1/10/2020 Project Number: 100068194	**AR2001**	**AR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	877 R1	320	mg/L
Total Suspended Solids (TSS)	3.8	72.2	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0	4.9 B2	mg/L
Chemical Oxygen Demand (COD)	< 10	110	mg/L
Total Nitrogen	0.47	0.71	mg/L
Nitrate N	0.11	0.23	mg/L
Ammonia N	< 0.028	0.064 J	mg/L
Orthophosphate	< 0.020	0.046	mg/L
Phosphorus, Dissolved	< 0.018	0.036 J	mg/L
Phosphorus, Total	0.049 J	0.26	mg/L
Atrazine	0.06 J	0.230	µg/L
Arsenic, Total	0.0010	0.0012	mg/L
Chromium, Total	< 0.00051	0.0013 J	mg/L
Copper, Total	< 0.00090	0.0030	mg/L
Lead, Total	< 0.00014	0.0013	mg/L
Zinc, Total	0.013	0.018	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.2 J	< 0.42	mg/L
pH	8.2	8.5	su
Ambient Air Temperature (field)	70	61	°F
Water Temperature (field)	61.3	62.0	°F
E. Coli	131.4	1413.6	MPN/100 mL
Specific Conductivity	914	814	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
R1 - RPD value was outside control limits
B2 - Oxygen usage is less than 2.0 for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.

ATKINS
Member of the SNC-Lavalin Group

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: January 22, 2020

Storm Summary

Storm description: Light rain moving from west to east.

Rain event start time and date: 0044 1/22/20 Rainfall total: 0.21 in
Rain event end time and date: 0624 1/22/20 Peak 1-hr rate: 0.06 in/hr

Rainfall station: KTXGARLA94
Antecedent dry period: 101 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Flow start time and date: 0235 1/22/20
Flow end time and date: 0515 1/22/20

Time first aliquot collected: 0309 1/22/20
Time last aliquot collected: 0512 1/22/20

Peak depth: 1.7 ft Aliquots collected: 6
Average depth: 1.5 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Flow start time and date: 0345 1/22/20
Flow end time and date: 1145 1/22/20

Time first aliquot collected: 0414 1/22/20
Time last aliquot collected: 0618 1/22/20

Peak depth:	2.6 ft	Aliquots collected:	6
Average depth:	2.3 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

GA 2003

Station location description: Rowlett Creek at Highway 66

Flow start time and date: 0427 (est.)
Flow end time and date: Unknown

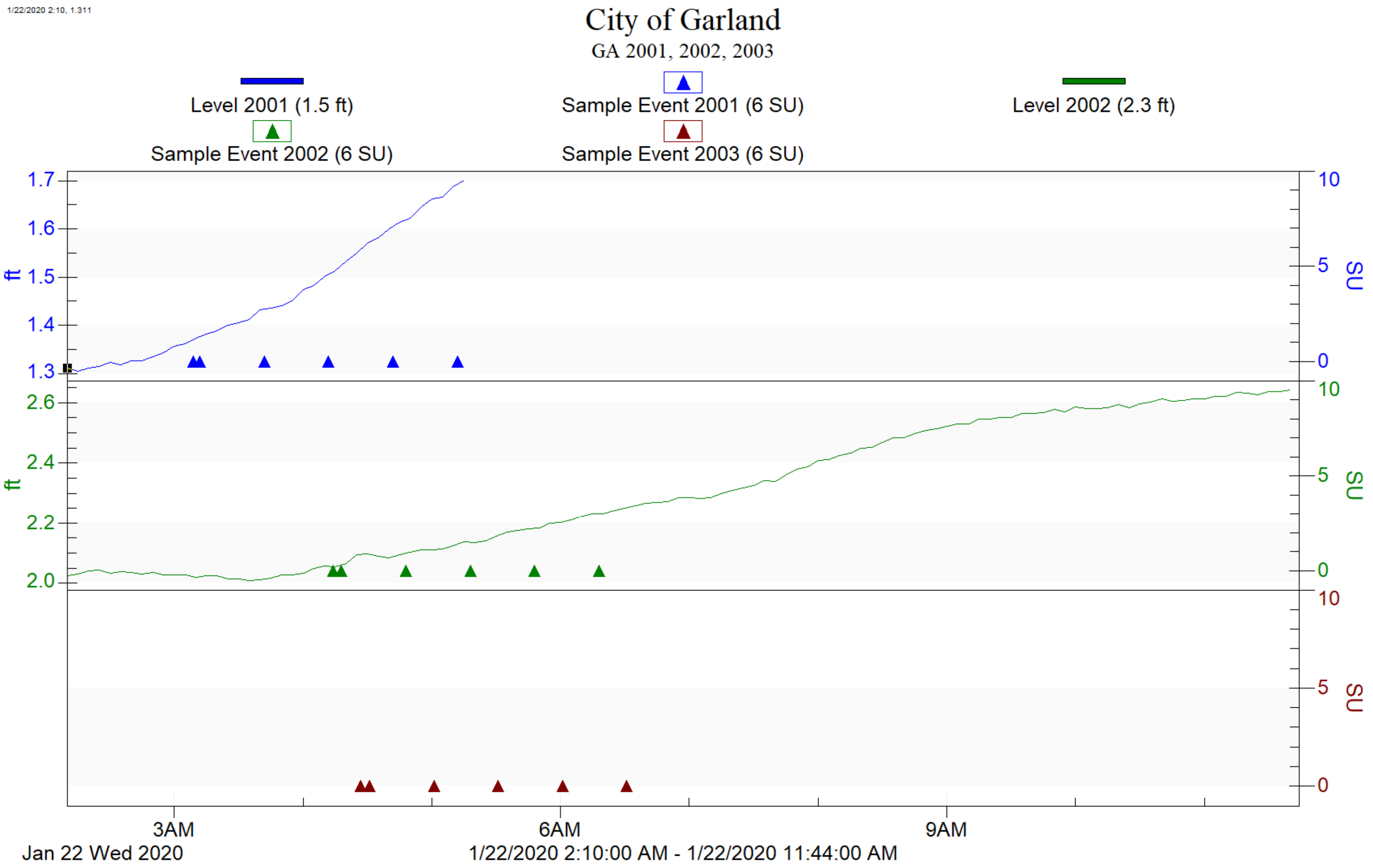
Time first aliquot collected: 0427 1/22/20
Time last aliquot collected: 0631 1/22/20

Peak depth:	0.5 ft	Aliquots collected:	6
Average depth:	0.3 ft	Total sample volume:	3.5 gal

Comments: Sampler level data was lost during data download when the sampler locked out communication with computer, however aliquot times and peak and average depths were recorded prior to the loss of data.

Prepared By: Adam Gottlieb Date: January 27, 2020

Checked By: Darren Siegmund Date: February 11, 2020


1/22/2020 2:10, 1.311
City of Garland
GA 2001, 2002, 2003
Level 2001 (1.5 ft)
Sample Event 2001 (6 SU)
Level 2002 (2.3 ft)
Sample Event 2002 (6 SU)
Sample Event 2003 (6 SU)
ft
1.7
1.6
1.5
1.4
1.3
SU
10
5
0
ft
2.6
2.4
2.2
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3AM
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Jan 22 Wed 2020
1/22/2020 2:10:00 AM - 1/22/2020 11:44:00 AM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF GARLAND 2020

Storm Event: 1/22/2020 Project Number: 100068194	**GA2001**	**GA2002**	**GA2003**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	471	705	462	mg/L
Total Suspended Solids (TSS)	158	182	21.6	mg/L
Biochemical Oxygen Demand (BOD)	6.3	106	< 2.0	mg/L
Chemical Oxygen Demand (COD)	15.6 J	217	13.4 J	mg/L
Total Nitrogen	4.6	10.2	6.2	mg/L
Nitrate N	3.6	< 0.025	4.8	mg/L
Ammonia N	0.082 J	7.6	0.19	mg/L
Orthophosphate	0.065	0.13	0.050	mg/L
Phosphorus, Dissolved	0.24	0.025 J	0.057	mg/L
Phosphorus, Total	0.27	< 0.018	0.12	mg/L
Atrazine	0.134	< 0.120	0.164	µg/L
Arsenic, Total	0.0031	0.018	0.00092	mg/L
Chromium, Total	0.0020 J	0.0026 J	0.00060 J	mg/L
Copper, Total	0.0034	0.0046	0.0021	mg/L
Lead, Total	0.0014	0.0016	0.00017 J	mg/L
Zinc, Total	0.012	0.014	0.0068	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.35	3.9 J	3.1 J	mg/L
pH	7.45	7.00	8.3	su
Ambient Air Temperature (field)	40	40	40	°F
Water Temperature (field)	49.8	49.6	50.2	°F
E. Coli	2489	512	250	MPN/100 mL
Specific Conductivity	1010	1440	968	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100068194
City of Irving 2020

Sample Collection Report
Event Date: January 10, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date: 1840 01/10/20 Rainfall total: 1.26 in
Rain event end time and date: 0250 01/11/20 Peak 1-hr rate: 0.35 in/hr

Rainfall station: IR 2001
Antecedent dry period: 314.5 hrs

Comments: Antecedent dry period determined using IR 2001 and DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Flow start time and date: 1845 01/10/20 Time first aliquot collected: 1847 01/10/20
Flow end time and date: 0600 01/11/20 Time last aliquot collected: 2051 01/10/20

Peak depth: 3.912 ft Aliquots collected: 6
Average depth: 2.131 ft Total sample volume: 3.5 gal

Comments: None

IR 2002

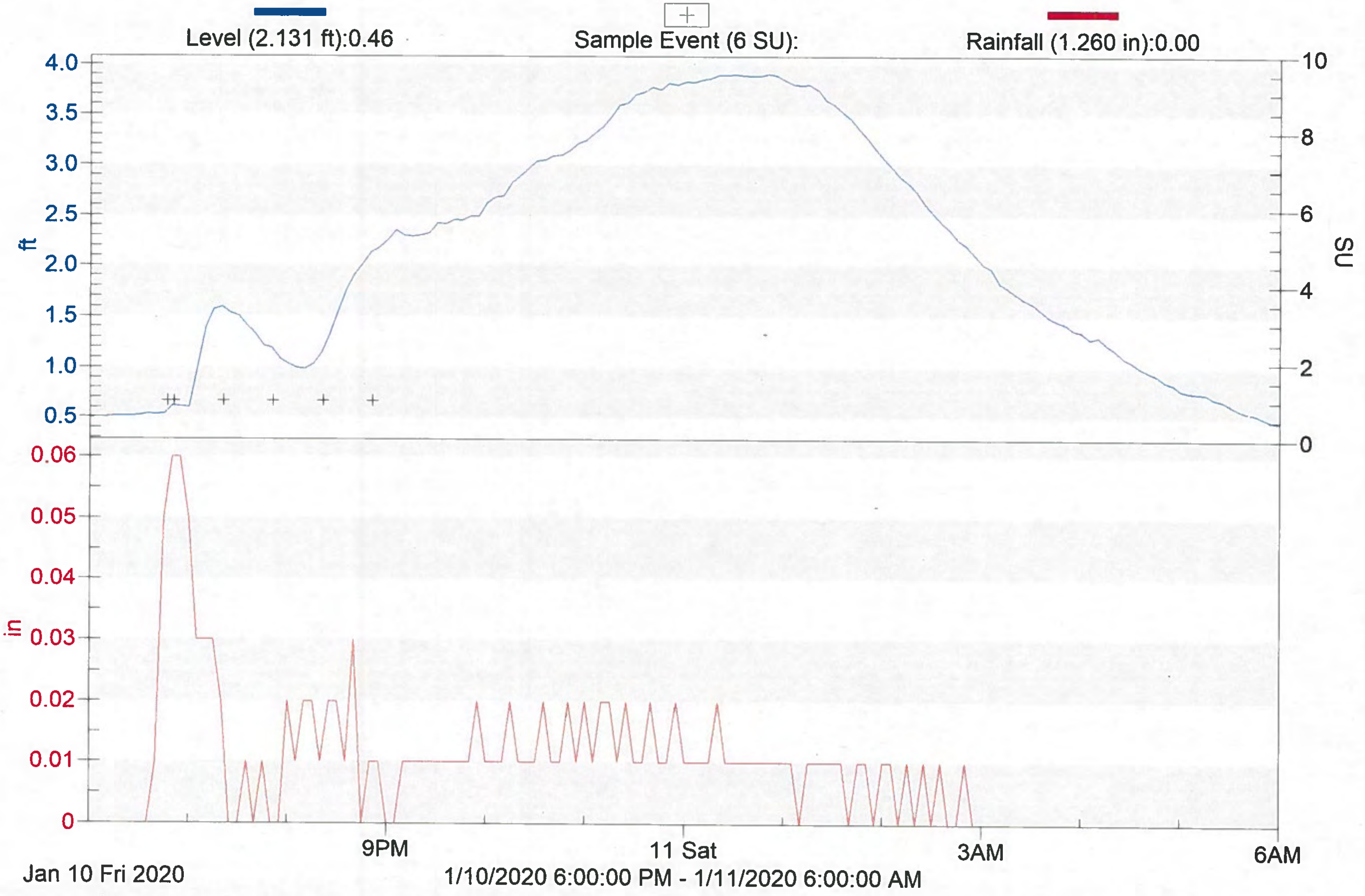
Station location description: Estelle Branch @ Rochelle Road

Comments: During the January 10, 2020 storm event, IR 2002 programing had reset and sampled incorrectly during the event. Peak flow had passed before replacement bottles could be placed for sampling. No sample was collected.

Prepared By: Ryan Deal Date: 2-24-20
Checked By: Charles Goddy Date: 02/24/2020

Irving Grapevine Creek

IR2001-1



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF IRVING 2020

Storm Event: 1/10/2020 Project Number: 100068194	**IR2001**	**IR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	232	NA	mg/L
Total Suspended Solids (TSS)	349	NA	mg/L
Biochemical Oxygen Demand (BOD)	2.0 B2	NA	mg/L
Chemical Oxygen Demand (COD)	15.6 J	NA	mg/L
Total Nitrogen	1.2	NA	mg/L
Nitrate N	0.31	NA	mg/L
Ammonia N	0.086 J	NA	mg/L
Orthophosphate	0.094	NA	mg/L
Phosphorus, Dissolved	0.040 J	NA	mg/L
Phosphorus, Total	0.28	NA	mg/L
Atrazine	1.65	NA	µg/L
Arsenic, Total	0.0021	NA	mg/L
Chromium, Total	0.0022 J	NA	mg/L
Copper, Total	0.010	NA	mg/L
Lead, Total	0.0042	NA	mg/L
Zinc, Total	0.075	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	0.56 J	NA	mg/L
pH	8.6	NA	su
Ambient Air Temperature (field)	55	NA	°F
Water Temperature (field)	63.0	NA	°F
E. Coli	2419.6	NA	MPN/100 mL
Specific Conductivity	667	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B2 - Oxygen usage is less than 2.0 for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100068194
City of Irving 2020

Sample Collection Report
Event Date: January 16, 2020

Storm Summary

Storm description: Heavy rain moving from southwest to northeast.

Rain event start time and date:	0540 01/16/20	Rainfall total:	2.20 in
Rain event end time and date:	1215 01/16/20	Peak 1-hr rate:	1.28 in/hr

Rainfall station:	KDFW – DFW International Airport
Antecedent dry period:	123 hrs

Comments: Antecedent dry period determined from DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Comments: IR 2001 was previously sampled during the January 10, 2020 storm event. No samples were collected during the January 16, 2020 storm event.

IR 2002

Station location description: Estelle Branch @ Rochelle Road

Flow start time and date:	0530 01/16/20	Time first aliquot collected:	0542 01/16/20
Flow end time and date:	2350 01/16/20	Time last aliquot collected:	0746 01/16/20
Peak depth:	1.464 ft	Aliquots collected:	6
Average depth:	0.280 ft	Total sample volume:	3.5 gal

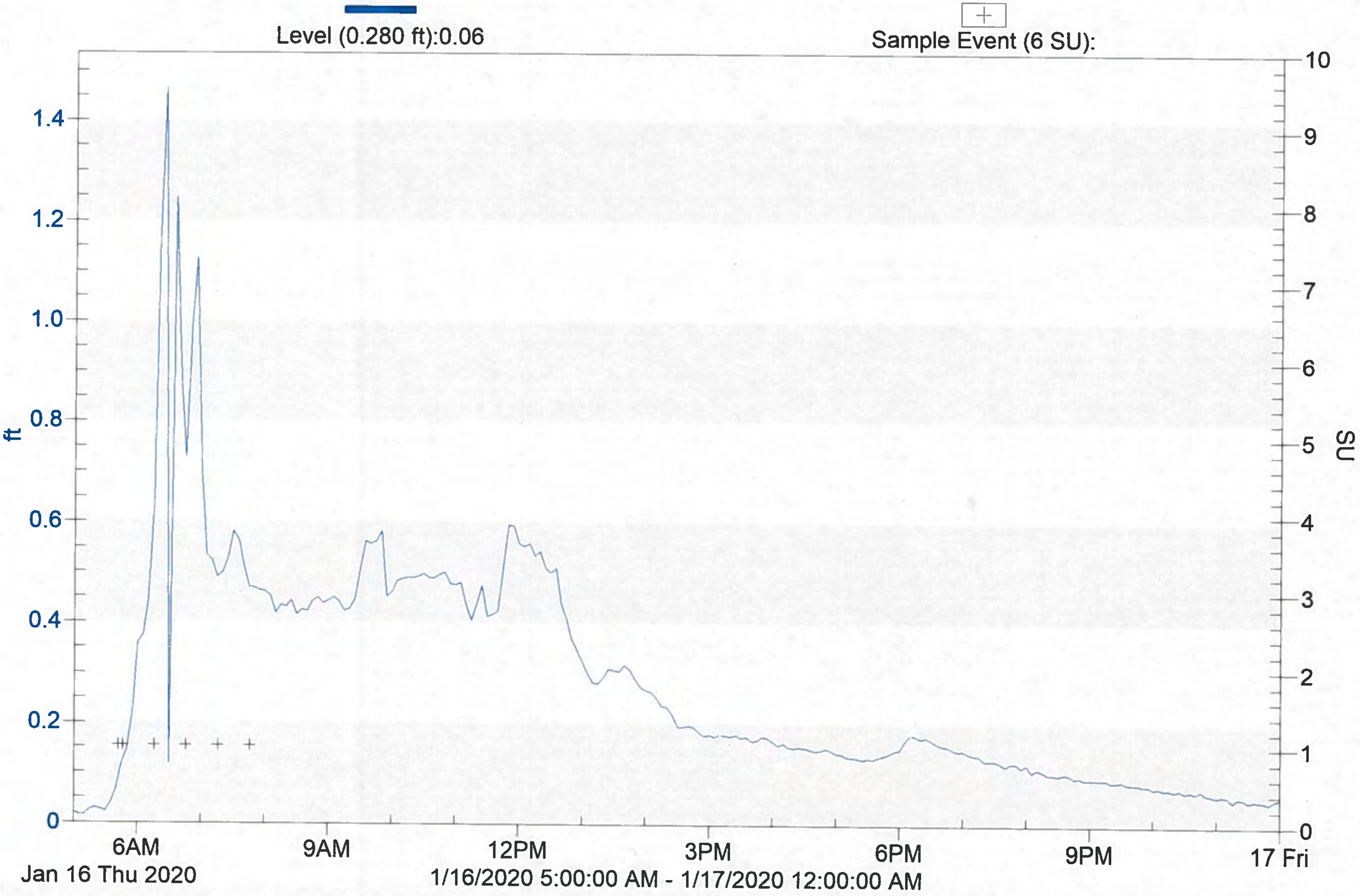
Comments: Due to the location of DFW International Airport and storm motion, the flow start time at IR 2002 is prior to the rain event start time at KDFW.

Prepared By: Ryan Deal Date: 2-24-20

Checked By: Charles P Gaddy Date: 02/24/2020

Irving Estelle Creek

IR2002-1



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF IRVING 2020

Storm Event: 1/16/2020 Project Number: 100068194	**IR2001**	**IR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	111	mg/L
Total Suspended Solids (TSS)	NA	147	mg/L
Biochemical Oxygen Demand (BOD)	NA	3.4 R6	mg/L
Chemical Oxygen Demand (COD)	NA	26.3 J	mg/L
Total Nitrogen	NA	1.5	mg/L
Nitrate N	NA	0.51	mg/L
Ammonia N	NA	0.13	mg/L
Orthophosphate	NA	0.097	mg/L
Phosphorus, Dissolved	NA	0.082	mg/L
Phosphorus, Total	NA	0.31	mg/L
Atrazine	NA	< 0.100	µg/L
Arsenic, Total	NA	0.0027	mg/L
Chromium, Total	NA	0.0091	mg/L
Copper, Total	NA	0.0085	mg/L
Lead, Total	NA	0.0039	mg/L
Zinc, Total	NA	0.041	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	< 0.40	mg/L
pH	NA	9.2	su
Ambient Air Temperature (field)	NA	47	°F
Water Temperature (field)	NA	56.0	°F
E. Coli	NA	10462	MPN/100 mL
Specific Conductivity	NA	402	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
R6 - The RPD between valid sample dilutions exceeded 30%

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF MESQUITE

Sample Collection Report
Event Date: January 10, 2020

Storm Summary

Storm description: Thunderstorms formed to the southwest and moved northeast.

Rain event start time and date:	1950 1/10/20	Rainfall total:	0.73 in
Rain event end time and date:	0255 1/11/20	Peak 1-hr rate:	0.30 in/hr

Rainfall station:	MS 2002
Antecedent dry period:	312 hrs

Comments: The antecedent dry period was calculated using data from MS 2002 and the KTXMESQU27 weather station located at the Municipal Center (www.wunderground.com/weatherstation).

MS 2001

Station location description: North of New Market Road

Flow start time and date:	1950 1/10/20
Flow end time and date:	0645 1/12/20

Time first aliquot collected:	2001 1/10/20
Time last aliquot collected:	2204 1/10/20

Peak depth:	6.6 ft	Aliquots collected:	6
Average depth:	2.3 ft	Total sample volume:	3.5 gal

Comments: None.

MS 2002

Station location description: North Mesquite Creek at Edward’s Church

Flow start time and date: 2010 1/10/20
Flow end time and date: 2200 1/11/20

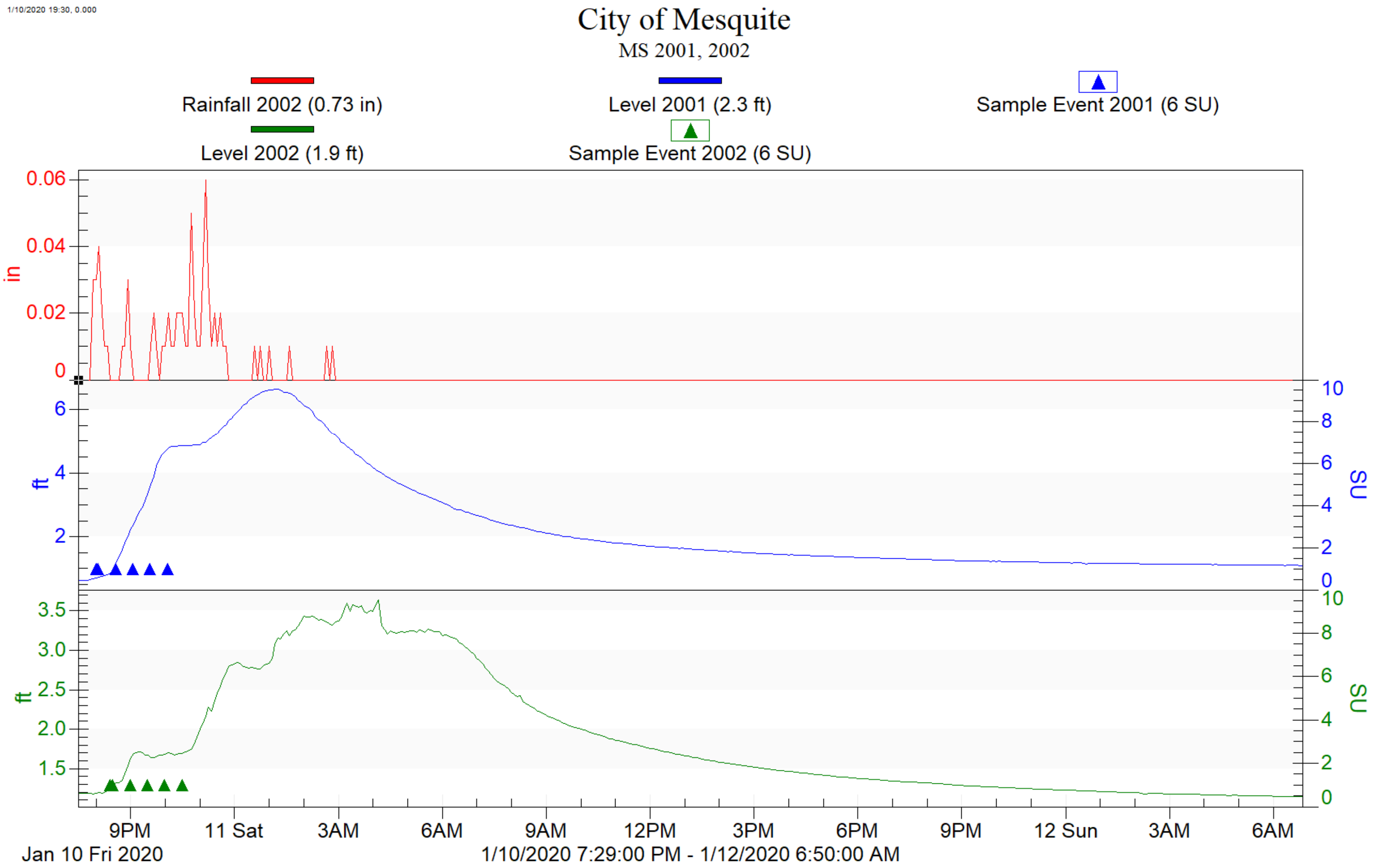
Time first aliquot collected: 2024 1/10/20
Time last aliquot collected: 2229 1/10/20

Peak depth:	3.6 ft	Aliquots collected:	6
Average depth:	1.9 ft	Total sample volume:	3.5 gal

Comments: None.

Prepared By: Adam Gottlieb Date: January 14, 2020

Checked By: Darren Siegmund Date: February 11, 2020


1/10/2020 19:30, 0.000
City of Mesquite
MS 2001, 2002
Rainfall 2002 (0.73 in)
Level 2001 (2.3 ft)
Sample Event 2001 (6 SU)
Level 2002 (1.9 ft)
Sample Event 2002 (6 SU)
0.06
0.04
0.02
0
in
6
4
2
ft
10
8
6
4
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SU
3.5
3.0
2.5
2.0
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9PM
11 Sat
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6AM
9AM
12PM
3PM
6PM
9PM
12 Sun
3AM
6AM
Jan 10 Fri 2020
1/10/2020 7:29:00 PM - 1/12/2020 6:50:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF MESQUITE 2020

Storm Event: 1/10/2020 Project Number: 100068194	**MS2001**	**MS2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	336	269	mg/L
Total Suspended Solids (TSS)	41.3	45.5	mg/L
Biochemical Oxygen Demand (BOD)	3.5	3.8	mg/L
Chemical Oxygen Demand (COD)	17.7 J	26.3 J	mg/L
Total Nitrogen	0.58	0.94	mg/L
Nitrate N	0.11	0.51	mg/L
Ammonia N	< 0.028	0.031 J	mg/L
Orthophosphate	< 0.020	0.042	mg/L
Phosphorus, Dissolved	< 0.018	0.042 J	mg/L
Phosphorus, Total	0.099	0.12	mg/L
Atrazine	0.06 J	0.411	µg/L
Arsenic, Total	0.0011	0.0019	mg/L
Chromium, Total	0.0017 J	0.0010 J	mg/L
Copper, Total	0.0032	0.0027	mg/L
Lead, Total	0.0017	0.0012	mg/L
Zinc, Total	0.013	0.018	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.40	< 0.36	mg/L
pH	8.5	8.5	su
Ambient Air Temperature (field)	66	66	°F
Water Temperature (field)	58.3	59.1	°F
E. Coli	59.1	> 2419.6	MPN/100 mL
Specific Conductivity	616	640	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
NORTH TEXAS TOLLWAY AUTHORITY

Sample Collection Report
Event Date: January 16, 2020

Storm Summary

Storm description: Heavy storms formed to the south and moved north.

Rain event start time and date: 0515 1/16/20   Rainfall total: 1.82 in
Rain event end time and date: 0930 1/16/20   Peak 1-hr rate: 1.12 in/hr

Rainfall station: NTTA 2001
Antecedent dry period: 123 hrs

Comments: The antecedent dry period was calculated using data from NTTA 2001 and NTTA 2002.

NTTA 2001

Station location description: Unnamed Tributary at SH 161 N. of Gateway Dr.

Flow start time and date: 0530 1/16/20
Flow end time and date: 0935 1/16/20

Time first aliquot collected: 0534 1/16/20
Time last aliquot collected: 0737 1/16/20

Peak depth: 2.8 ft   Aliquots collected: 6
Average depth: 1.3 ft   Total sample volume: 3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

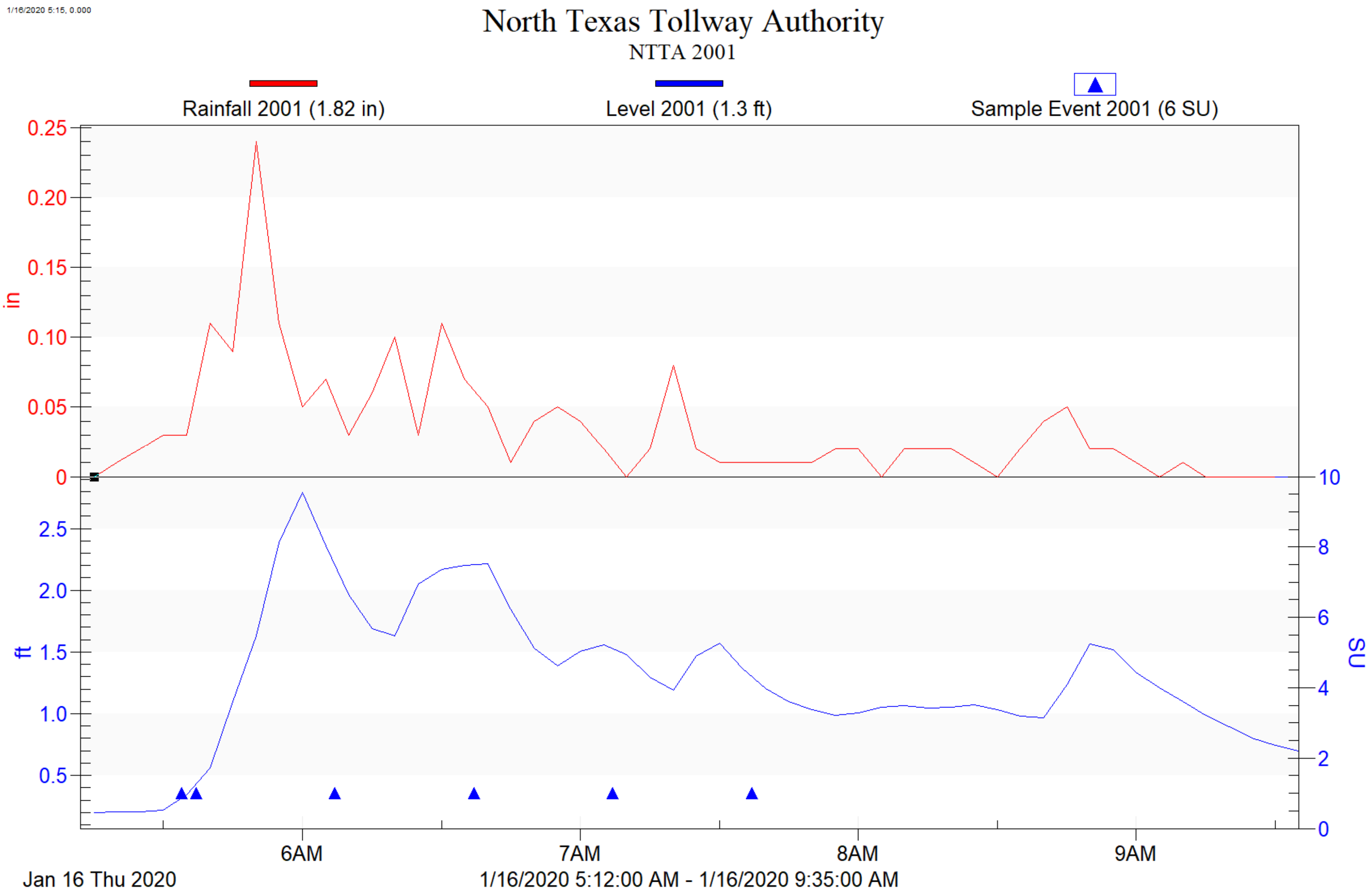
NTTA 2002

Station location description: Cottonwood Creek at SH 161 S. of Dickey Road

Comments: A successful sample was collected on January 10, 2020.

Prepared By: Adam Gottlieb Date: January 17, 2020

Checked By: Darren Siegmund Date: February 11, 2020


1/16/2020 5:15, 0.000
North Texas Tollway Authority
NTTA 2001
Rainfall 2001 (1.82 in)
Level 2001 (1.3 ft)
Sample Event 2001 (6 SU)
in
0.25
0.20
0.15
0.10
0.05
0
ft
2.5
2.0
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1.0
0.5
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6AM
7AM
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9AM
Jan 16 Thu 2020
1/16/2020 5:12:00 AM - 1/16/2020 9:35:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

NORTH TEXAS TOLLWAY AUTHORITY 2020

Storm Event: 1/16/2020 Project Number: 100068194	**NT2001**	**NT2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	90.0	NA	mg/L
Total Suspended Solids (TSS)	115	NA	mg/L
Biochemical Oxygen Demand (BOD)	5.4 B2, D6	NA	mg/L
Chemical Oxygen Demand (COD)	15.6 J	NA	mg/L
Total Nitrogen	1.2	NA	mg/L
Nitrate N	0.55	NA	mg/L
Ammonia N	< 0.028	NA	mg/L
Orthophosphate	0.079	NA	mg/L
Phosphorus, Dissolved	0.080	NA	mg/L
Phosphorus, Total	0.25	NA	mg/L
Atrazine	< 0.100	NA	µg/L
Arsenic, Total	0.0023	NA	mg/L
Chromium, Total	0.0084	NA	mg/L
Copper, Total	0.0081	NA	mg/L
Lead, Total	0.0043	NA	mg/L
Zinc, Total	0.052	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.38	NA	mg/L
pH	8.8	NA	su
Ambient Air Temperature (field)	51	NA	°F
Water Temperature (field)	55.8	NA	°F
E. Coli	631 D6	NA	MPN/100 mL
Specific Conductivity	448	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits
B2 - Oxygen usage is less than 2.0 for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
NORTH TEXAS TOLLWAY AUTHORITY

Sample Collection Report
Event Date: January 10, 2020

Storm Summary

Storm description: Thunderstorms formed to the southwest and moved northeast.

Rain event start time and date:	1830 1/10/20	Rainfall total:	1.10 in
Rain event end time and date:	0200 1/11/20	Peak 1-hr rate:	0.37 in/hr

Rainfall station:	NTTA 2002
Antecedent dry period:	316 hrs

Comments: The antecedent dry period was calculated using data from NTTA 2002 and the GPTX 26080 weather station located at N Cottonwood and Great Southwest Parkway (https://gptx.onerain.com/home.php).

NTTA 2001

Station location description: Unnamed Tributary at SH 161 N. of Gateway Dr.

Comments: A sample was not successfully collected due to malfunctioning bubbler module. The module was sent in for repair.

NTTA 2002

Station location description: Cottonwood Creek at SH 161 S. of Dickey Road

Flow start time and date: 1840 1/10/20
Flow end time and date: 0845 1/12/20

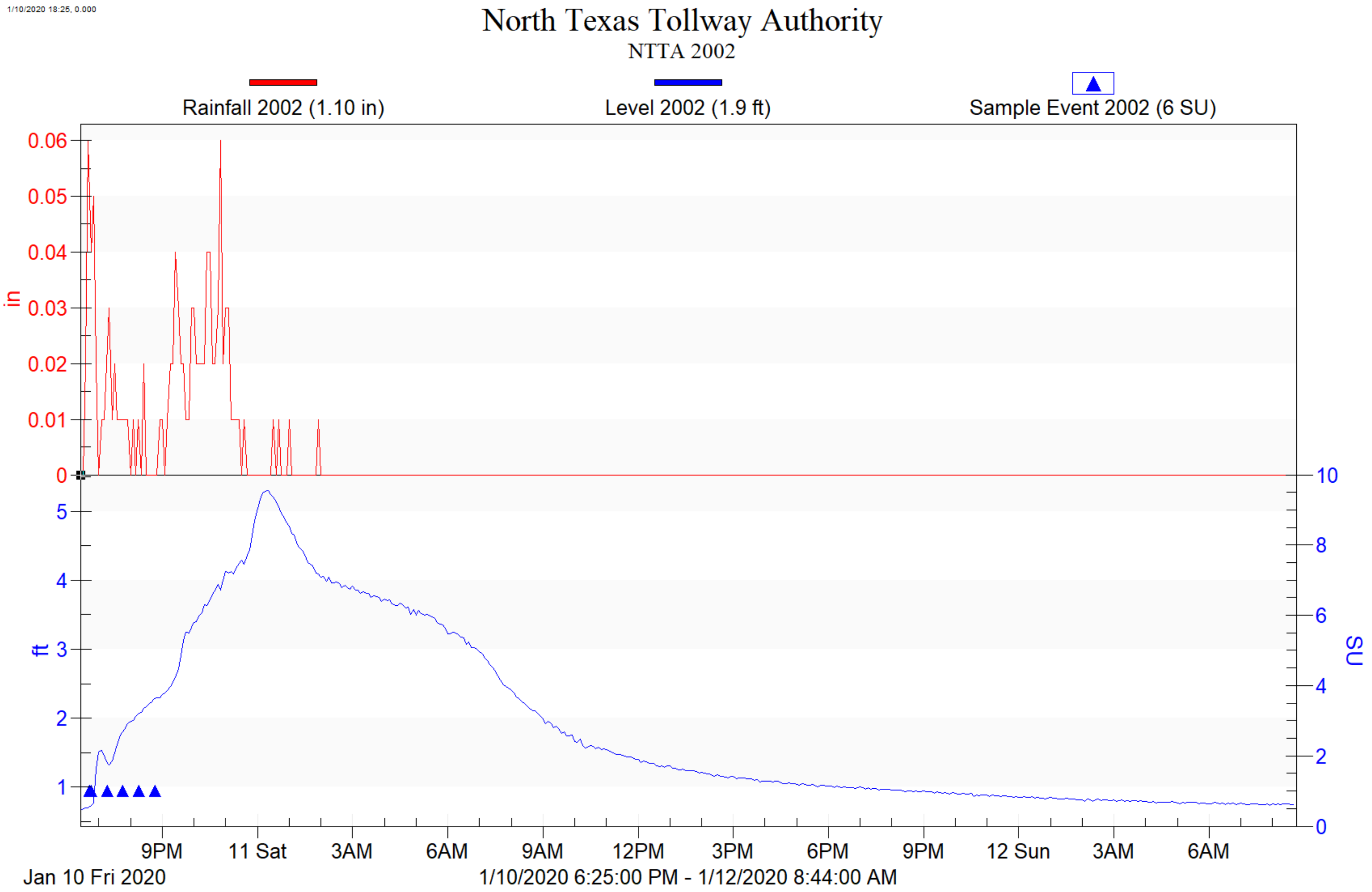
Time first aliquot collected: 1842 1/10/20
Time last aliquot collected: 2046 1/10/20

Peak depth:	5.3 ft	Aliquots collected:	6
Average depth:	1.9 ft	Total sample volume:	3.5 gal

Comments: None.

Prepared By: Adam Gottlieb Date: January 14, 2020

Checked By: Darren Siegmund Date: February 11, 2020


1/10/2020 18:25, 0.000
North Texas Tollway Authority
NTTA 2002
Rainfall 2002 (1.10 in)
Level 2002 (1.9 ft)
Sample Event 2002 (6 SU)
in
0.06
0.05
0.04
0.03
0.02
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0
ft
5
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9PM
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Jan 10 Fri 2020
1/10/2020 6:25:00 PM - 1/12/2020 8:44:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

NORTH TEXAS TOLLWAY AUTHORITY 2020

Storm Event: 1/10/2020 Project Number: 100068194	**NT2001**	**NT2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	147	mg/L
Total Suspended Solids (TSS)	NA	95.4	mg/L
Biochemical Oxygen Demand (BOD)	NA	2.4 B2	mg/L
Chemical Oxygen Demand (COD)	NA	22.0 J	mg/L
Total Nitrogen	NA	1.0	mg/L
Nitrate N	NA	0.32	mg/L
Ammonia N	NA	0.31	mg/L
Orthophosphate	NA	0.050	mg/L
Phosphorus, Dissolved	NA	0.036 J	mg/L
Phosphorus, Total	NA	0.20	mg/L
Atrazine	NA	0.09 J	µg/L
Arsenic, Total	NA	0.0019	mg/L
Chromium, Total	NA	0.0019 J	mg/L
Copper, Total	NA	0.0062	mg/L
Lead, Total	NA	0.0040	mg/L
Zinc, Total	NA	0.049	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.6 J	mg/L
pH	NA	8.3	su
Ambient Air Temperature (field)	NA	65	°F
Water Temperature (field)	NA	61.2	°F
E. Coli	NA	1413.6 D6	MPN/100 mL
Specific Conductivity	NA	321	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits
B2 - Oxygen usage is less than 2.0 for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF PLANO

Sample Collection Report
Event Date: January 28, 2020

Storm Summary

Storm description: Moderate rain moving from southwest to northeast.

Rain event start time and date: 0535 1/28/20 Rainfall total: 0.16 in
Rain event end time and date: 0740 1/28/20 Peak 1-hr rate: 0.14 in/hr

Rainfall station: PL 2001
Antecedent dry period: 135 hrs

Comments: The antecedent dry period was calculated using a combination of data from PL 2001 and the weather station KTXPLANO105 located in Creek Trails, Plano (www.wunderground.com/weatherstation.

PL 2001

Station location description: Rowlett Creek at Alma Drive

Flow start time and date: 0610 1/28/20
Flow end time and date: 0955 1/28/20

Time first aliquot collected: 0629 1/28/20
Time last aliquot collected: 0834 1/28/20

Peak depth: 3.2 ft Aliquots collected: 6
Average depth: 2.4 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

PL 2002

Station location description: Rowlett Creek in Oak Point Park

Flow start time and date: 0655 1/28/20
Flow end time and date: 0930 1/28/20

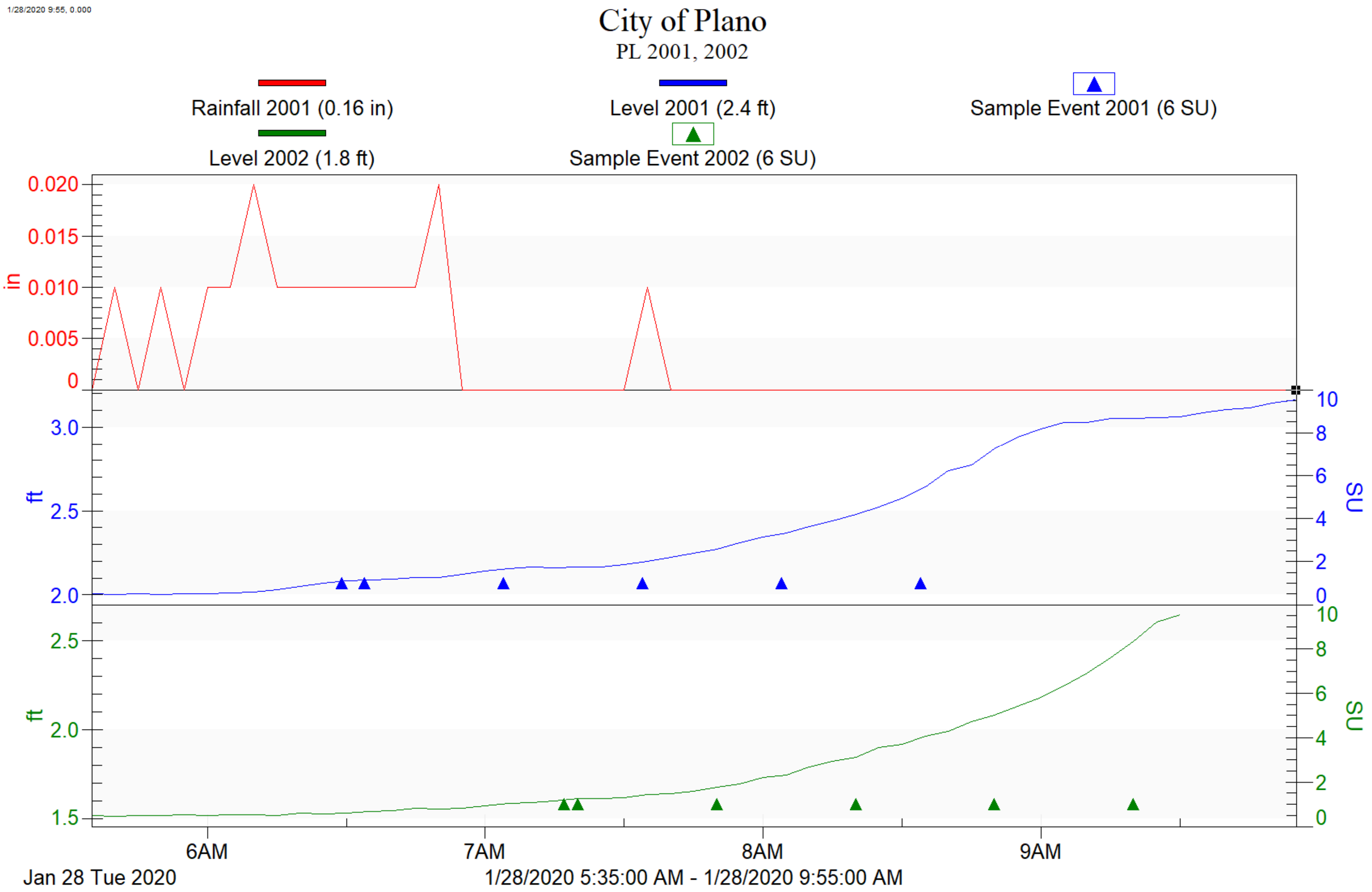
Time first aliquot collected: 0717 1/28/20
Time last aliquot collected: 0920 1/28/20

Peak depth:	2.6 ft	Aliquots collected:	6
Average depth:	1.8 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: January 30, 2020

Checked By: Darren Siegmund Date: February 11, 2020


1/28/2020 9:55, 0.000
City of Plano
PL 2001, 2002
Rainfall 2001 (0.16 in)
Level 2001 (2.4 ft)
Sample Event 2001 (6 SU)
Level 2002 (1.8 ft)
Sample Event 2002 (6 SU)
in
0.020
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ft
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Jan 28 Tue 2020
1/28/2020 5:35:00 AM - 1/28/2020 9:55:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF PLANO 2020

Storm Event: 1/28/2020 Project Number: 100068194	**PL2001**	**PL2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	385	432	mg/L
Total Suspended Solids (TSS)	37.5	4.7	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0	< 2.0	mg/L
Chemical Oxygen Demand (COD)	< 10	19.9 J	mg/L
Total Nitrogen	2.6	3.2	mg/L
Nitrate N	2.0	2.1	mg/L
Ammonia N	< 0.028	0.032 J	mg/L
Orthophosphate	< 0.020	< 0.020	mg/L
Phosphorus, Dissolved	< 0.018	< 0.018	mg/L
Phosphorus, Total	0.21	0.051	mg/L
Atrazine	0.044 J	0.065 J	µg/L
Arsenic, Total	0.00080	0.00079	mg/L
Chromium, Total	0.00062 J	0.00057 J	mg/L
Copper, Total	0.0014 J	0.0016 J	mg/L
Lead, Total	0.00026 J	< 0.00014	mg/L
Zinc, Total	0.0095	0.0060	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.39	< 0.36	mg/L
pH	8.38	8.41	su
Ambient Air Temperature (field)	51	51	°F
Water Temperature (field)	54.7	53.1	°F
E. Coli	1413.6	154.2 D6	MPN/100 mL
Specific Conductivity	636	805	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100068194
City of Arlington 2020

Sample Collection Report
Event Date: April 28, 2020

Storm Summary

Storm description: Moderate rain moving from northwest to southeast.

Rain event start time and date: 0455 04/28/20 Rainfall total: 0.28 in
Rain event end time and date: 0515 04/28/20 Peak 1-hr rate: 0.28 in/hr

Rainfall station: Rush Creek @ West Sublett Road (6650)
Antecedent dry period: 372.5 hrs

Comments: Antecedent dry period determined by Rush Creek @ West Sublett Road (6650) from https://gptx.onerain.com/home.php.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Flow start time and date: 0500 04/28/20 Time first aliquot collected: 0507 04/28/20
Flow end time and date: 2315 04/28/20 Time last aliquot collected: 0717 04/28/20

Peak depth: 1.085 ft Aliquots collected: 6
Average depth: 0.296 ft Total sample volume: 3.5 gal

Comments: None

AR 2002

Station location description: Rush Creek @ Woodland Park Blvd.

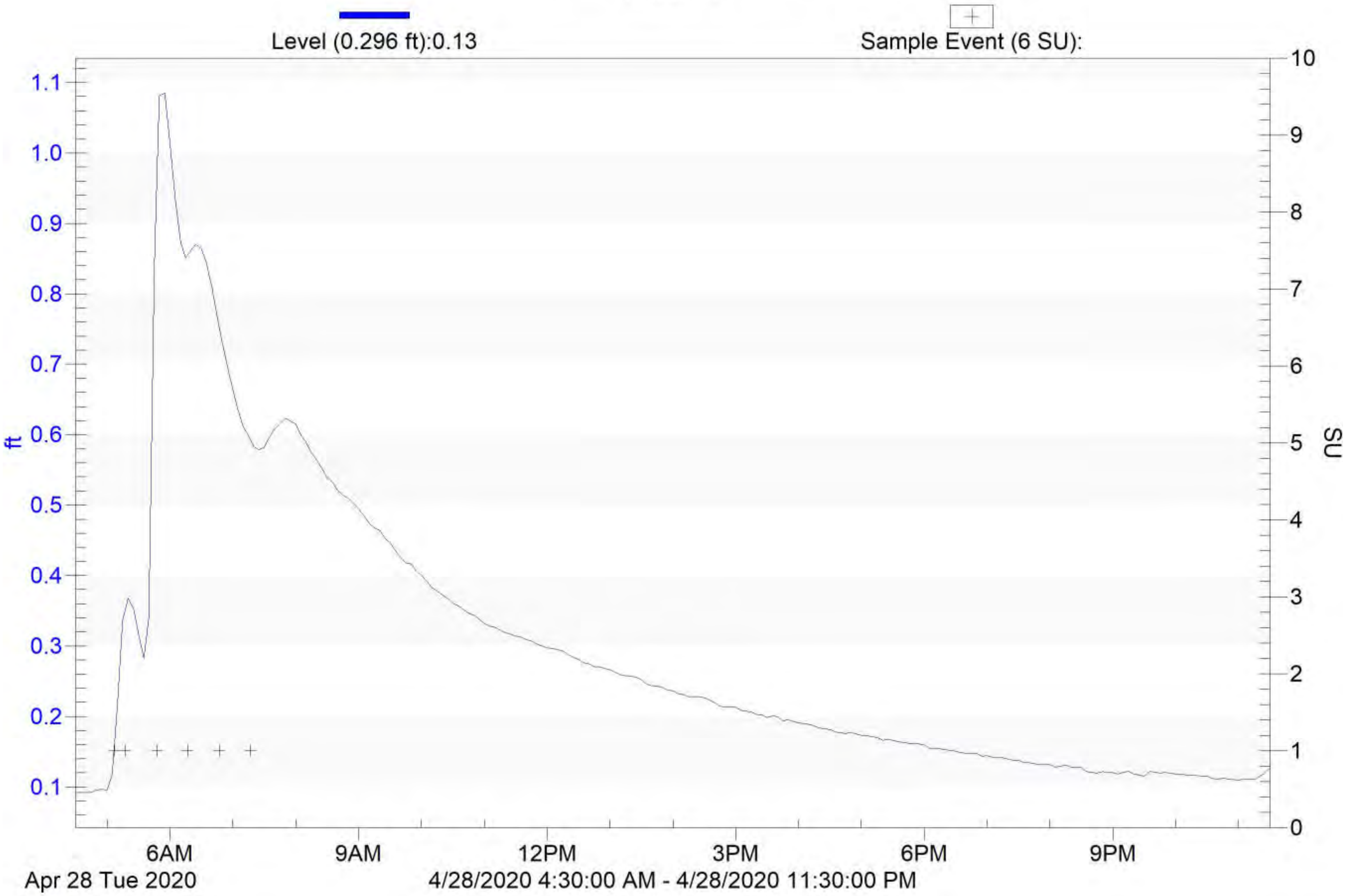
Comments: Previously sampled during the April 3, 2020 sampling event.

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.06.08 13:48:44-05'00' Date: ______________

Checked By: Charles P. Gaddy Digitally signed by Charles P. Gaddy DN: C=US, E=charles.gaddy@freese.com, O=FNI, OU=1170, CN=Charles P. Gaddy Date: 2020.06.08 14:13:01-05'00' Date: ______________

Arlington Rush Creek

AR2001-2



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF ARLINGTON 2020

Storm Event: 4/28/2020 Project Number: 100068194	**AR2001**	**AR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	601	NA	mg/L
Total Suspended Solids (TSS)	122	NA	mg/L
Biochemical Oxygen Demand (BOD)	7.6 R6	NA	mg/L
Chemical Oxygen Demand (COD)	< 10	NA	mg/L
Total Nitrogen	2.1	NA	mg/L
Nitrate N	0.43	NA	mg/L
Ammonia N	0.19	NA	mg/L
Orthophosphate	0.027 J	NA	mg/L
Phosphorus, Dissolved	0.041 J	NA	mg/L
Phosphorus, Total	0.25	NA	mg/L
Atrazine	0.914	NA	µg/L
Arsenic, Total	0.0050	NA	mg/L
Chromium, Total	0.0031	NA	mg/L
Copper, Total	0.0040	NA	mg/L
Lead, Total	0.0024	NA	mg/L
Zinc, Total	0.039	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.37	NA	mg/L
pH	6.5	NA	su
Ambient Air Temperature (field)	66	NA	°F
Water Temperature (field)	70	NA	°F
E. Coli	279.0	NA	MPN/100 mL
Specific Conductivity	1045	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
R6 - The RPD between valid sample dilutions exceeded 30%

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100068194
City of Arlington 2020

Sample Collection Report
Event Date: April 3, 2020

Storm Summary

Storm description: Light rain moving from west to east.

Rain event start time and date: 0630 04/03/20 Rainfall total: 0.12 in
Rain event end time and date: 0715 04/03/20 Peak 1-hr rate: 0.12 in/hr

Rainfall station: Rush Creek @ Woodland Park (6610)
Antecedent dry period: 83 hrs

Comments: Antecedent dry period determined by Rush Creek @ Woodland Park (6610) from https://gptx.onerain.com/home.php.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Comments: Sampler did not trigger during the April 3, 2020 event.

AR 2002

Station location description: Rush Creek @ Woodland Park Blvd.

Flow start time and date: 0645 04/03/20 Time first aliquot collected: 0737 04/03/20
Flow end time and date: 1110 04/03/20 Time last aliquot collected: 0941 04/03/20

Peak depth: 0.85 ft Aliquots collected: 6
Average depth: 0.744 ft Total sample volume: 3.5 gal

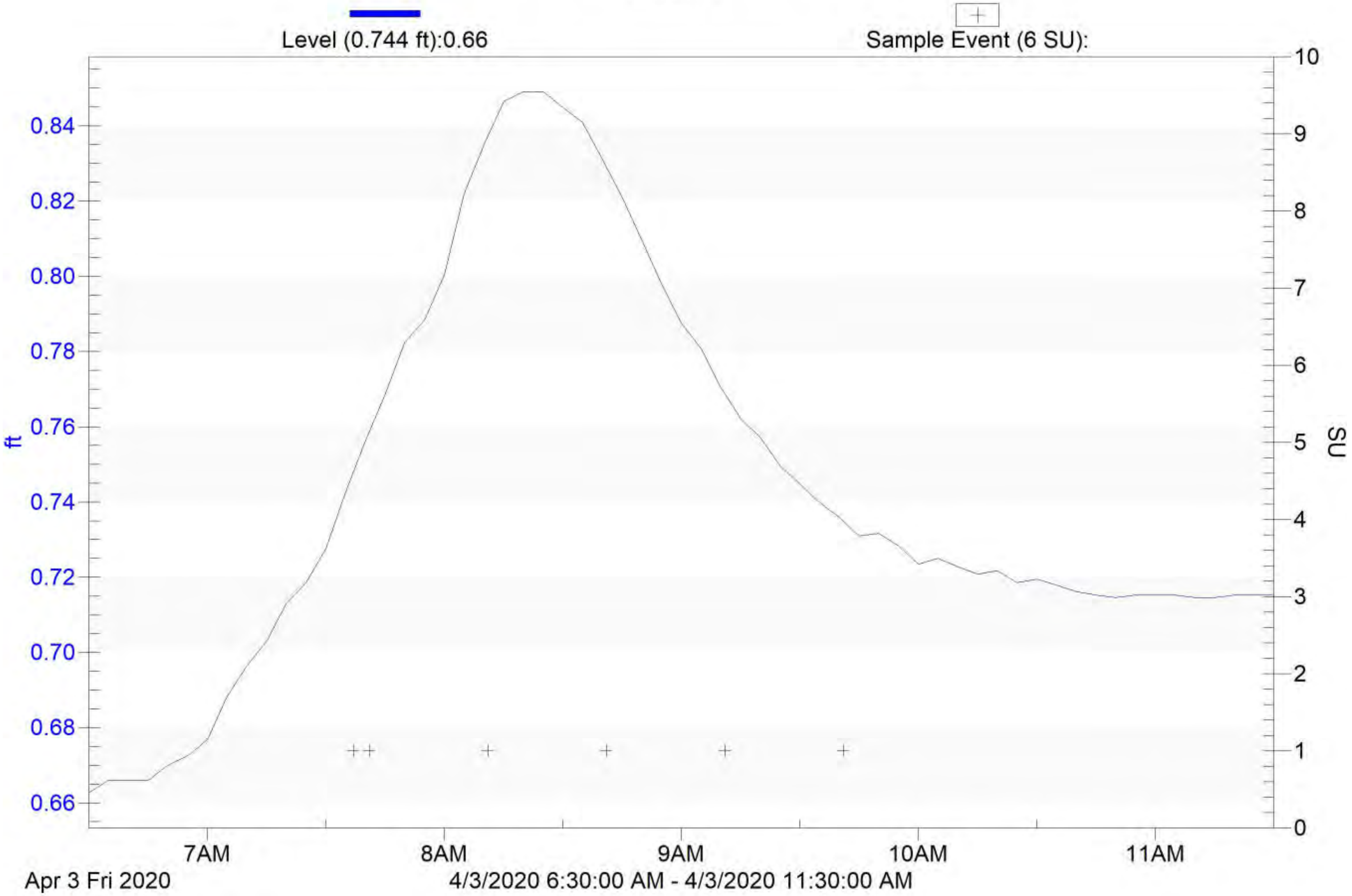
Comments: None

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.06.08 13:47:29-05'00' Date: ________________

Checked By: Charles P. Gaddy Digitally signed by Charles P. Gaddy DN: C=US, E=charles.gaddy@freese.com, O=FNI, OU=1170, CN=Charles P. Gaddy Date: 2020.06.08 14:13:28-05'00' Date: ________________

Arlington Rush Creek

AR2002-2



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF ARLINGTON 2020

Storm Event: 4/3/2020 Project Number: 100068194	**AR2001**	**AR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	578	mg/L
Total Suspended Solids (TSS)	NA	6.8	mg/L
Biochemical Oxygen Demand (BOD)	NA	2.1	mg/L
Chemical Oxygen Demand (COD)	NA	< 10	mg/L
Total Nitrogen	NA	0.81	mg/L
Nitrate N	NA	0.38	mg/L
Ammonia N	NA	0.13 B	mg/L
Orthophosphate	NA	0.039 J	mg/L
Phosphorus, Dissolved	NA	0.048 J	mg/L
Phosphorus, Total	NA	0.066	mg/L
Atrazine	NA	0.892	µg/L
Arsenic, Total	NA	0.00085	mg/L
Chromium, Total	NA	0.00053 J	mg/L
Copper, Total	NA	0.0026	mg/L
Lead, Total	NA	0.00027 J	mg/L
Zinc, Total	NA	0.010	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.8 J	mg/L
pH	NA	8.2	su
Ambient Air Temperature (field)	NA	46	°F
Water Temperature (field)	NA	63	°F
E. Coli	NA	331 D6	MPN/100 mL
Specific Conductivity	NA	910	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits
B - Analyte was detected in the associated method blank

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: April 11, 2020

Storm Summary

Storm description: Scattered showers formed to the southwest and moved northeast.

Rain event start time and date:	1145 4/11/20	Rainfall total:	0.16 in
Rain event end time and date:	1425 4/11/20	Peak 1-hr rate:	0.11 in/hr

Rainfall station:	GA 2002
Antecedent dry period:	179 hrs

Comments: None

GA 2001

Station location description:	Rowlett Creek at Ben Davis Bridge

Flow start time and date:	1150 4/11/20
Flow end time and date:	1500 4/11/20

Time first aliquot collected:	1252 4/11/20
Time last aliquot collected:	1456 4/11/20

Peak depth:	1.3 ft	Aliquots collected:	6
Average depth:	1.1 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities. Based on field notes, the first two aliquots from the left of the graph do not represent successful samples.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Comments: A sample was not successfully collected during the first flush due to errors in the sampler program and was therefore ineligible for analysis.

GA 2003

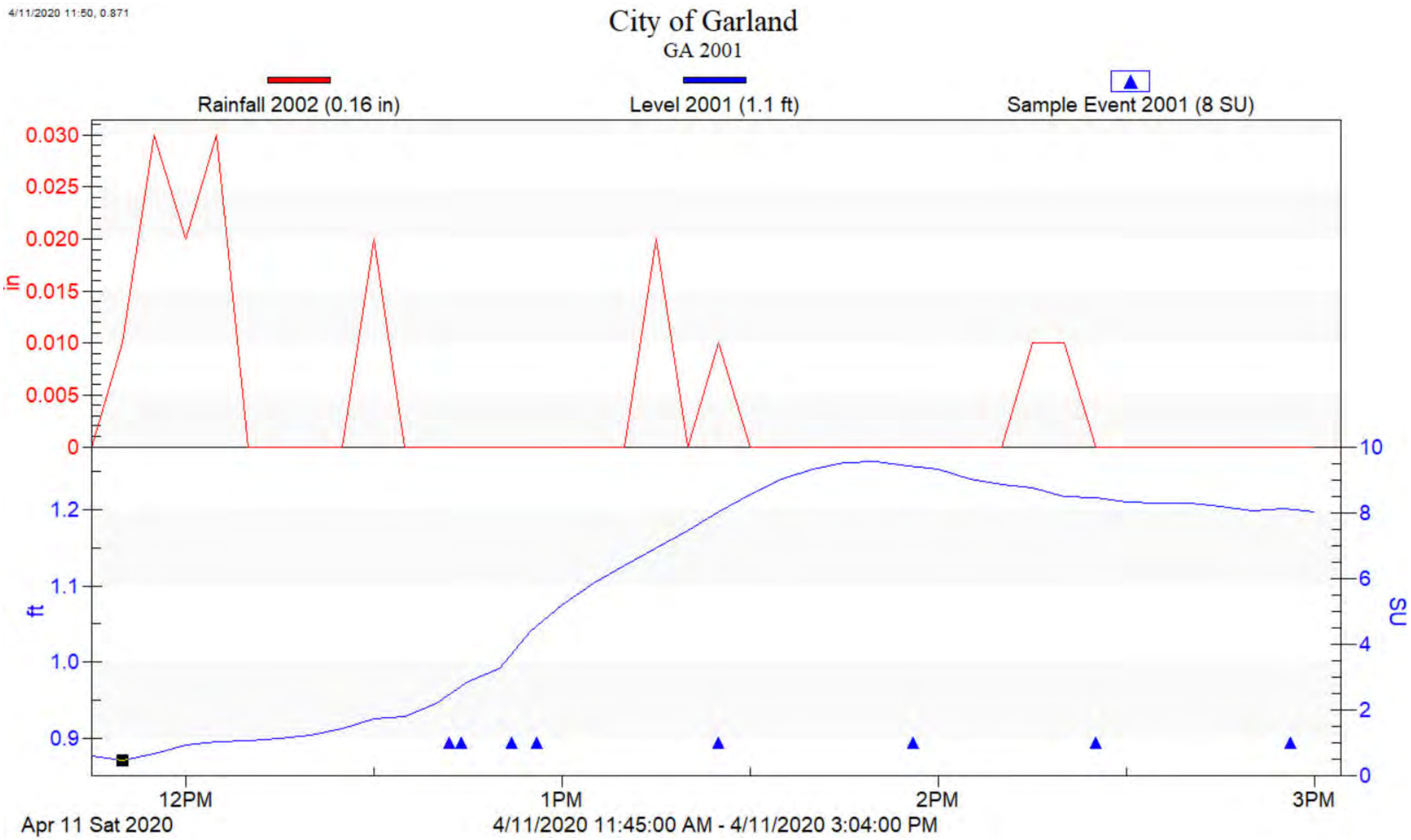
Station location description: Rowlett Creek at Highway 66

Comments: A successful sample was not collected due to the sampler falsely triggering prior to the event.

Prepared By: Adam Gottlieb Date: April 29, 2020

Checked By: Darren Siegmund Date: May 5, 2020

Sample Collection Report
City of Garland
Event Date: April 11, 2020



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
CITY OF GARLAND 2020

Storm Event: 4/11/2020 Project Number: 100068194	GA2001	GA2002	GA2003	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	482	NA	NA	mg/L
Total Suspended Solids (TSS)	14.2	NA	NA	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0	NA	NA	mg/L
Chemical Oxygen Demand (COD)	< 10	NA	NA	mg/L
Total Nitrogen	7.4	NA	NA	mg/L
Nitrate N	6.3 BL	NA	NA	mg/L
Ammonia N	0.059 J,B	NA	NA	mg/L
Orthophosphate	0.070	NA	NA	mg/L
Phosphorus, Dissolved	0.069	NA	NA	mg/L
Phosphorus, Total	0.095	NA	NA	mg/L
Atrazine	0.300	NA	NA	µg/L
Arsenic, Total	0.0012	NA	NA	mg/L
Chromium, Total	0.00057 J	NA	NA	mg/L
Copper, Total	< 0.00090	NA	NA	mg/L
Lead, Total	0.00038 J	NA	NA	mg/L
Zinc, Total	0.0046 J	NA	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.38	NA	NA	mg/L
pH	8.38	NA	NA	su
Ambient Air Temperature (field)	65	NA	NA	°F
Water Temperature (field)	65.8	NA	NA	°F
E. Coli	173	NA	NA	MPN/100 mL
Specific Conductivity	942	NA	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B - Analyte was detected in the associated method blank
BL - Data qualified as potentially biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: April 28, 2020

Storm Summary

Storm description: Moderate rain formed to the north and moved south.

Rain event start time and date: 2315 4/28/20 Rainfall total: 0.52 in
Rain event end time and date: 0040 4/29/20 Peak 1-hr rate: 0.50 in/hr

Rainfall station: GA 2002
Antecedent dry period: 227 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Comments: A sample was successfully collected on April 11th.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Flow start time and date: 2320 4/28/20
Flow end time and date: 0155 4/29/20

Time first aliquot collected: 2344 4/28/20
Time last aliquot collected: 0148 4/29/20

Peak depth: 4.7 ft Aliquots collected: 6
Average depth: 4.1 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

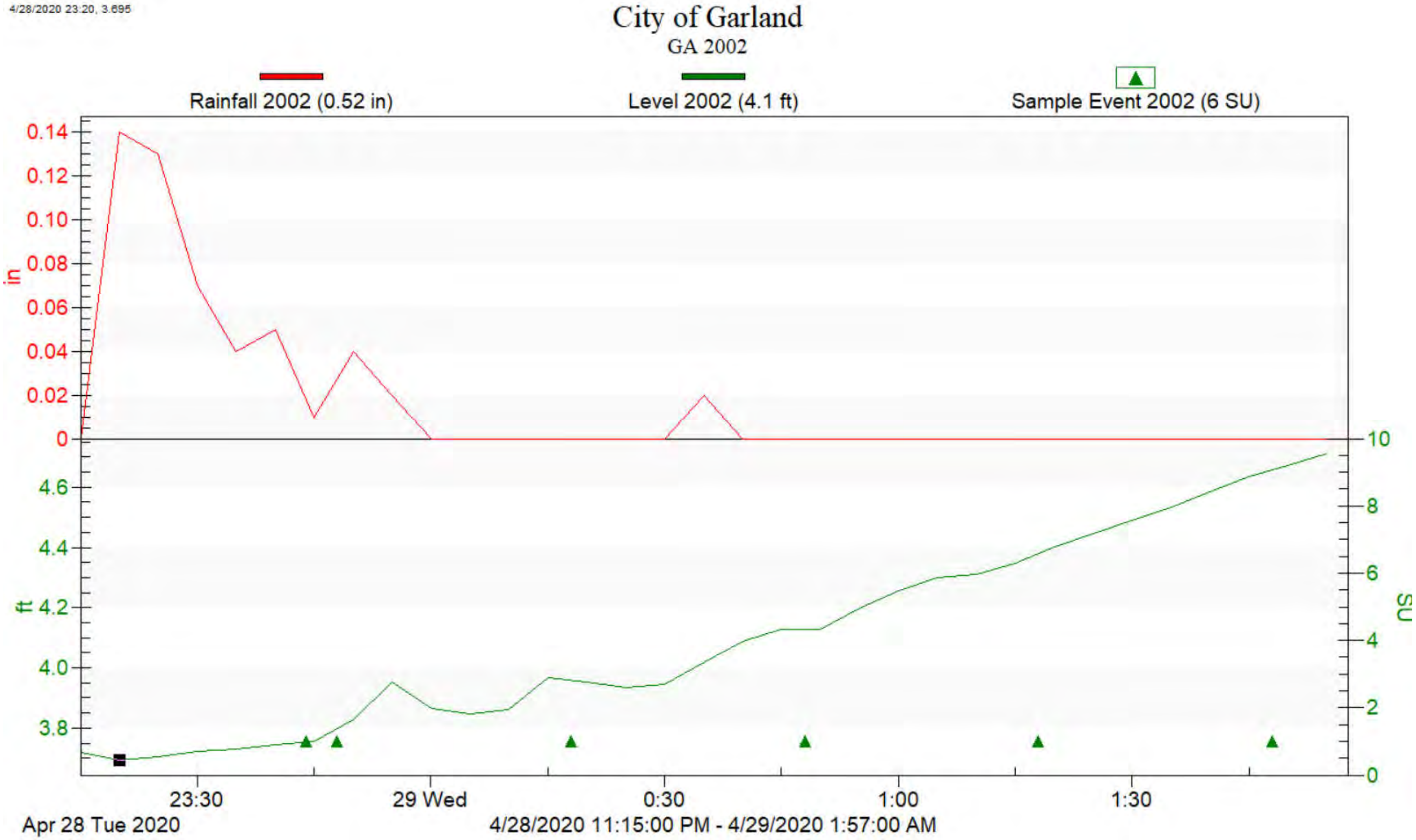
GA 2003

Station location description: Rowlett Creek at Highway 66

Comments: A sample was successfully collected on April 19th.

Prepared By: Adam Gottlieb Date: April 29, 2020

Checked By: Darren Siegmund Date: May 5, 2020


4/28/2020 23:20, 3.695
City of Garland
GA 2002
Rainfall 2002 (0.52 in)
Level 2002 (4.1 ft)
Sample Event 2002 (6 SU)
in
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Apr 28 Tue 2020
4/28/2020 11:15:00 PM - 4/29/2020 1:57:00 AM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
CITY OF GARLAND 2020

Storm Event: 4/28/2020 Project Number: 100068194	GA2001	GA2002	GA2003	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	549	NA	mg/L
Total Suspended Solids (TSS)	NA	70.0	NA	mg/L
Biochemical Oxygen Demand (BOD)	NA	9.0	NA	mg/L
Chemical Oxygen Demand (COD)	NA	< 10	NA	mg/L
Total Nitrogen	NA	4.7	NA	mg/L
Nitrate N	NA	0.78	NA	mg/L
Ammonia N	NA	0.82	NA	mg/L
Orthophosphate	NA	0.22	NA	mg/L
Phosphorus, Dissolved	NA	< 0.018	NA	mg/L
Phosphorus, Total	NA	0.67	NA	mg/L
Atrazine	NA	0.051 J	NA	µg/L
Arsenic, Total	NA	0.024	NA	mg/L
Chromium, Total	NA	0.0017 J	NA	mg/L
Copper, Total	NA	0.0024	NA	mg/L
Lead, Total	NA	0.0015	NA	mg/L
Zinc, Total	NA	0.021	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	< 0.35	NA	mg/L
pH	NA	7.21	NA	su
Ambient Air Temperature (field)	NA	68	NA	°F
Water Temperature (field)	NA	69.4	NA	°F
E. Coli	NA	120.0	NA	MPN/100 mL
Specific Conductivity	NA	1031	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: April 19, 2020

Storm Summary

Storm description: Light showers formed to the southwest and moved northeast.

Rain event start time and date:	1055 4/19/20	Rainfall total:	0.14 in
Rain event end time and date:	1210 4/19/20	Peak 1-hr rate:	0.13 in/hr

Rainfall station:	GA 2002
Antecedent dry period:	188 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Comments: A sample was successfully collected on April 11th.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Comments: The rise in the water depth did not qualify for sampling therefore a sample was not collected.

GA 2003

Station location description: Rowlett Creek at Highway 66

Flow start time and date: 1055 4/19/20
Flow end time and date: 1410 4/19/20

Time first aliquot collected: 1207 4/19/20
Time last aliquot collected: 1409 4/19/20

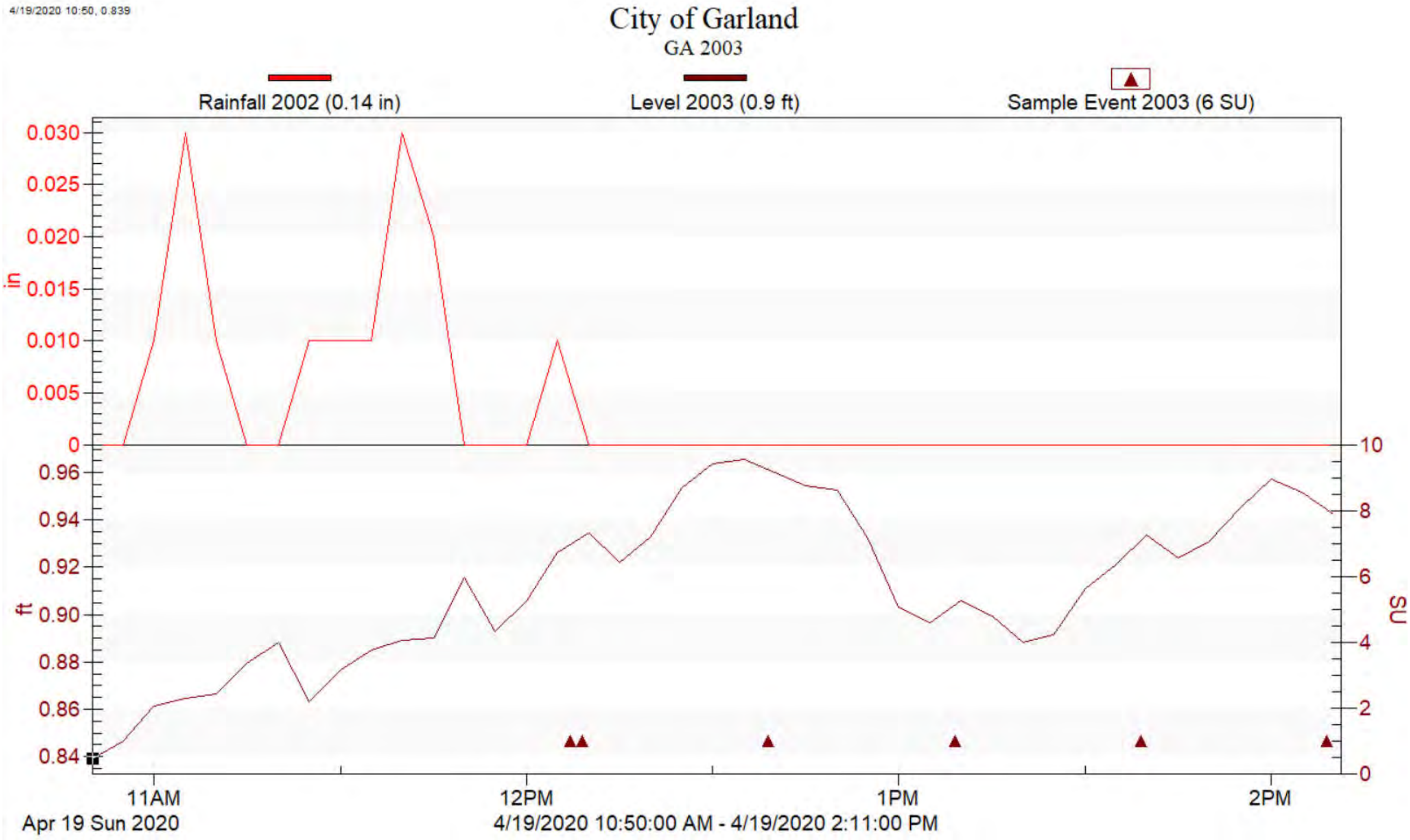
Peak depth:	1.0 ft	Aliquots collected:	6
Average depth:	0.9 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: April 29, 2020

Checked By: Darren Siegmund Date: May 5, 2020

Sample Collection Report
City of Garland
Event Date: April 19, 2020



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
CITY OF GARLAND 2020

Storm Event: 4/19/2020 Project Number: 100068194	GA2001	GA2002	GA2003	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	NA	476	mg/L
Total Suspended Solids (TSS)	NA	NA	21.5	mg/L
Biochemical Oxygen Demand (BOD)	NA	NA	< 2.0	mg/L
Chemical Oxygen Demand (COD)	NA	NA	14.1 J	mg/L
Total Nitrogen	NA	NA	1.2	mg/L
Nitrate N	NA	NA	7.1 BL	mg/L
Ammonia N	NA	NA	0.076 J	mg/L
Orthophosphate	NA	NA	0.15	mg/L
Phosphorus, Dissolved	NA	NA	0.13	mg/L
Phosphorus, Total	NA	NA	0.19	mg/L
Atrazine	NA	NA	0.226	µg/L
Arsenic, Total	NA	NA	0.0013	mg/L
Chromium, Total	NA	NA	0.0010 J	mg/L
Copper, Total	NA	NA	0.0027	mg/L
Lead, Total	NA	NA	0.00053	mg/L
Zinc, Total	NA	NA	0.0091	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	NA	1.4 J	mg/L
pH	NA	NA	8.33	su
Ambient Air Temperature (field)	NA	NA	69	°F
Water Temperature (field)	NA	NA	64.4	°F
E. Coli	NA	NA	464	MPN/100 mL
Specific Conductivity	NA	NA	882	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
BL - Data qualified as potentially biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100068194
City of Irving 2020

Sample Collection Report
Event Date: April 3, 2020

Storm Summary

Storm description: Light rain moving from west to east.

Rain event start time and date:	0553 04/03/20	Rainfall total:	0.11 in
Rain event end time and date:	0741 04/03/20	Peak 1-hr rate:	0.11 in/hr

Rainfall station: KDFW – DFW International Airport
Antecedent dry period: 81 hrs

Comments: Antecedent dry period determined from DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Flow start time and date:	Unknown	Time first aliquot collected:	0727 04/03/20
Flow end time and date:	Unknown	Time last aliquot collected:	0931 04/03/20
Peak depth:	Unknown	Aliquots collected:	6
Average depth:	Unknown	Total sample volume:	3.5 gal

Comments: During the subsequent hydrograph data recovery attempt the sampler malfunctioned and sampler data was unable to be retrieved.

IR 2002

Station location description: Estelle Branch @ Rochelle Road

Flow start time and date:	0550 04/03/20	Time first aliquot collected:	0552 04/03/20
Flow end time and date:	0835 04/03/20	Time last aliquot collected:	0757 04/03/20
Peak depth:	0.16 ft	Aliquots collected:	6
Average depth:	0.094 ft	Total sample volume:	3.5 gal

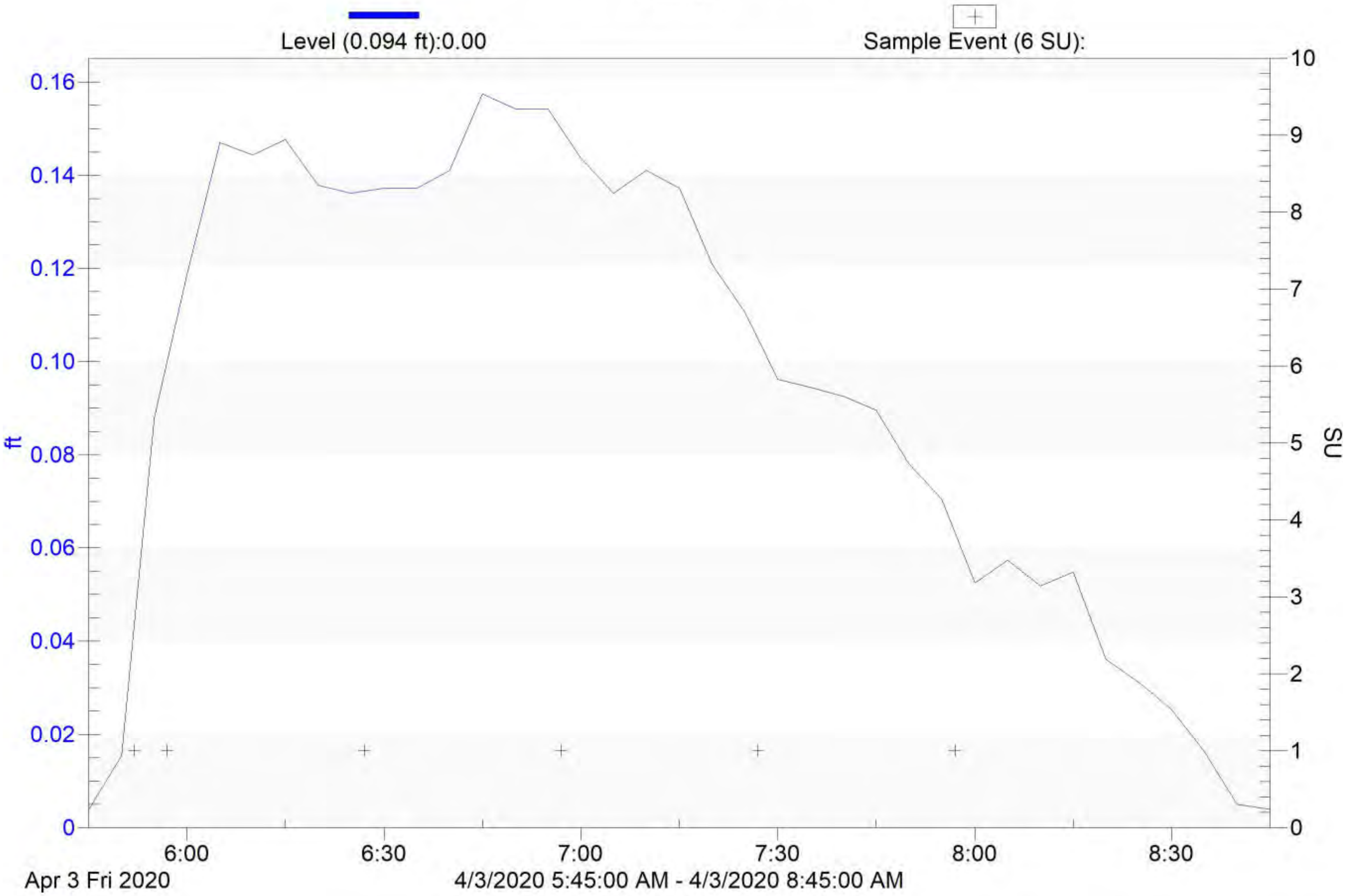
Comments: None

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.05.27 12:13:29-05'00' Date: 05/27/2020

Checked By: Charles P. Gaddy Digitally signed by Charles P. Gaddy DN: C=US, E=charles.gaddy@freese.com, O=FNI, OU=1170, CN=Charles P. Gaddy Date: 2020.05.28 10:00:00-05'00' Date: 05/28/2020

Irving Estelle Branch

IR2002-2



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
CITY OF IRVING 2020

Storm Event: 4/3/2020 Project Number: 100068194	IR2001	IR2002	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	476	199	mg/L
Total Suspended Solids (TSS)	21.3	28.9	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0	4.3	mg/L
Chemical Oxygen Demand (COD)	< 10	< 10	mg/L
Total Nitrogen	1.2	1.6	mg/L
Nitrate N	0.76	0.77	mg/L
Ammonia N	0.12 B	0.16 B	mg/L
Orthophosphate	< 0.020	< 0.020	mg/L
Phosphorus, Dissolved	0.047 J	0.26 1t,TW	mg/L
Phosphorus, Total	0.038 J	0.091	mg/L
Atrazine	0.081 J	0.076 J	µg/L
Arsenic, Total	0.0014	0.0013	mg/L
Chromium, Total	0.0019	0.0038	mg/L
Copper, Total	0.0050	0.0061	mg/L
Lead, Total	0.00060	0.0015	mg/L
Zinc, Total	0.025	0.035	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	3.8 J	0.88 J	mg/L
pH	8.7	8.4	su
Ambient Air Temperature (field)	43	43	°F
Water Temperature (field)	63	63	°F
E. Coli	7701	3448	MPN/100 mL
Specific Conductivity	814	678	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B - Analyte was detected in the associated method blank
1t - Redigestion and reanalysis confirm original result
TW - Dissolved result is greater than the total. Data is within laboratory control limits, however the RPD between the total and the dissolved result is >20%

ATKINS
Member of the SNC-Lavalin Group

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF MESQUITE

Sample Collection Report
Event Date: April 11, 2020

Storm Summary

Storm description: Scattered showers formed to the southwest and moved northeast.

Rain event start time and date: 1145 4/11/20 Rainfall total: 0.10 in
Rain event end time and date: 1545 4/11/20 Peak 1-hr rate: 0.08 in/hr

Rainfall station: KTXMESQU27
Antecedent dry period: 179 hrs

Comments: The storm summary was calculated using data from MS 2002 and the KTXMESQU27 weather station located at the Municipal Center (www.wunderground.com/weatherstation).

MS 2001

Station location description: North of New Market Road

Flow start time and date: 1305 4/11/20
Flow end time and date: 1800 4/11/20

Time first aliquot collected: 1338 4/11/20
Time last aliquot collected: 1541 4/11/20

Peak depth: 1.8 ft Aliquots collected: 6
Average depth: 1.7 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

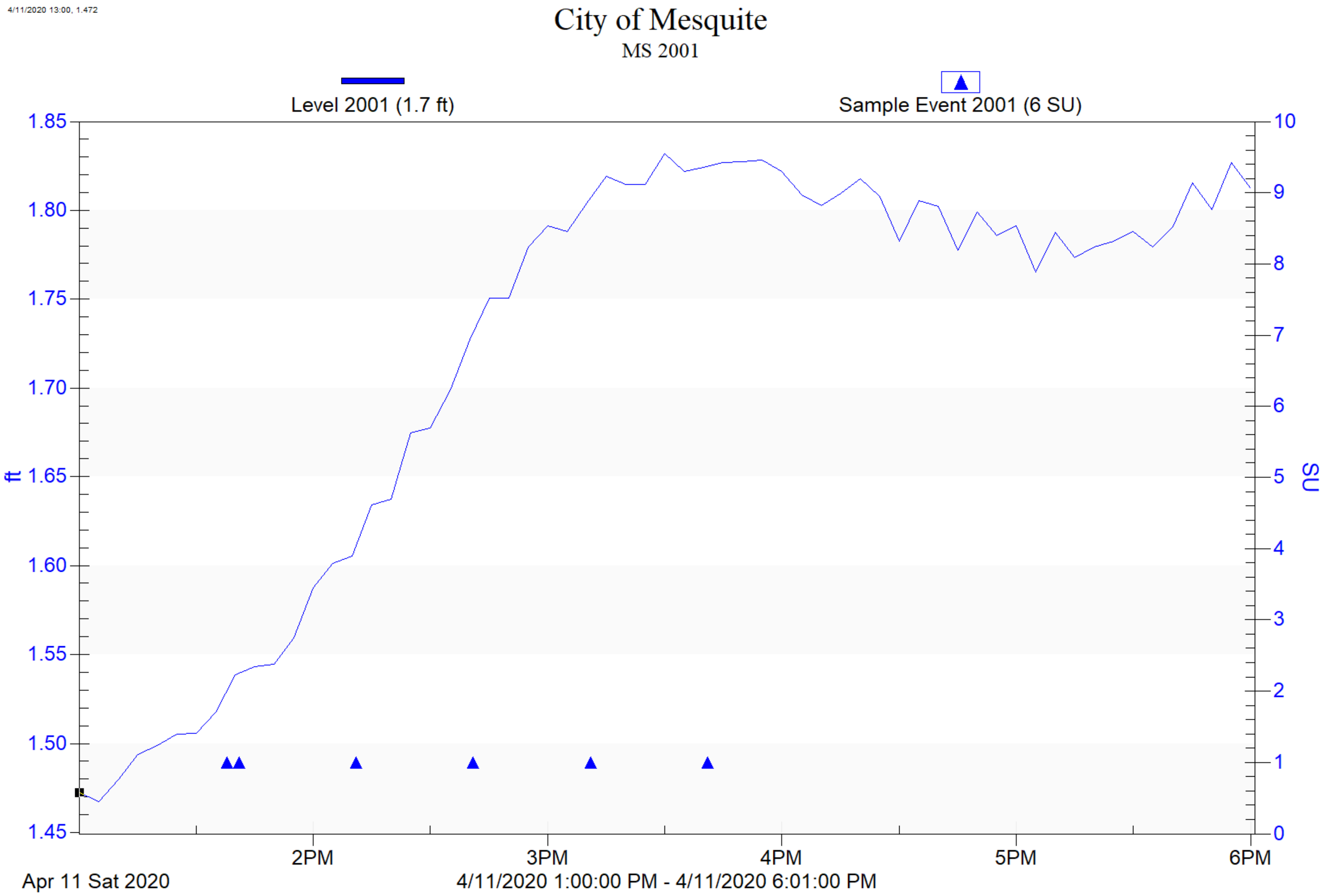
MS 2002

Station location description: North Mesquite Creek at Edward's Church

Comments: A sample was not collected because the storm event was not qualifying based on the on-site rain gages, which registered only 0.08".

Prepared By: Adam Gottlieb Date: April 29, 2020

Checked By: Darren Siegmund Date: May 5, 2020


4/11/2020 13:00, 1.472
City of Mesquite
MS 2001
Level 2001 (1.7 ft)
Sample Event 2001 (6 SU)
ft
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
SU
10
9
8
7
6
5
4
3
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1
0
2PM
3PM
4PM
5PM
6PM
Apr 11 Sat 2020
4/11/2020 1:00:00 PM - 4/11/2020 6:01:00 PM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF MESQUITE 2020

Storm Event: 4/11/2020 Project Number: 100068194	**MS2001**	**MS2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	341	NA	mg/L
Total Suspended Solids (TSS)	7.1	NA	mg/L
Biochemical Oxygen Demand (BOD)	2.0 H2	NA	mg/L
Chemical Oxygen Demand (COD)	17.7 J	NA	mg/L
Total Nitrogen	1.2	NA	mg/L
Nitrate N	0.15 BL	NA	mg/L
Ammonia N	0.071 J,B	NA	mg/L
Orthophosphate	< 0.020	NA	mg/L
Phosphorus, Dissolved	< 0.018	NA	mg/L
Phosphorus, Total	0.056	NA	mg/L
Atrazine	0.806	NA	µg/L
Arsenic, Total	0.0013	NA	mg/L
Chromium, Total	0.00062 J	NA	mg/L
Copper, Total	0.00094 J	NA	mg/L
Lead, Total	0.00031 J	NA	mg/L
Zinc, Total	0.0028 J	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.40	NA	mg/L
pH	8.5	NA	su
Ambient Air Temperature (field)	66	NA	°F
Water Temperature (field)	65.5	NA	°F
E. Coli	487	NA	MPN/100 mL
Specific Conductivity	593	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
H2 - Extraction or preparation conducted outside EPA method holding time
B - Analyte was detected in the associated method blank
BL - Data qualified as potentially biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF MESQUITE

Sample Collection Report
Event Date: April 12, 2020

Storm Summary

Storm description: Moderate rain formed to the southwest and moved northeast.

Rain event start time and date: 0440 4/12/20 Rainfall total: 0.52 in
Rain event end time and date: 0830 4/12/20 Peak 1-hr rate: 0.36 in/hr

Rainfall station: MS 2002
Antecedent dry period: 196 hrs

Comments: None.

MS 2001

Station location description: North of New Market Road

Comments: A successful sample was collected on April 11th.

MS 2002

Station location description: North Mesquite Creek at Edward's Church

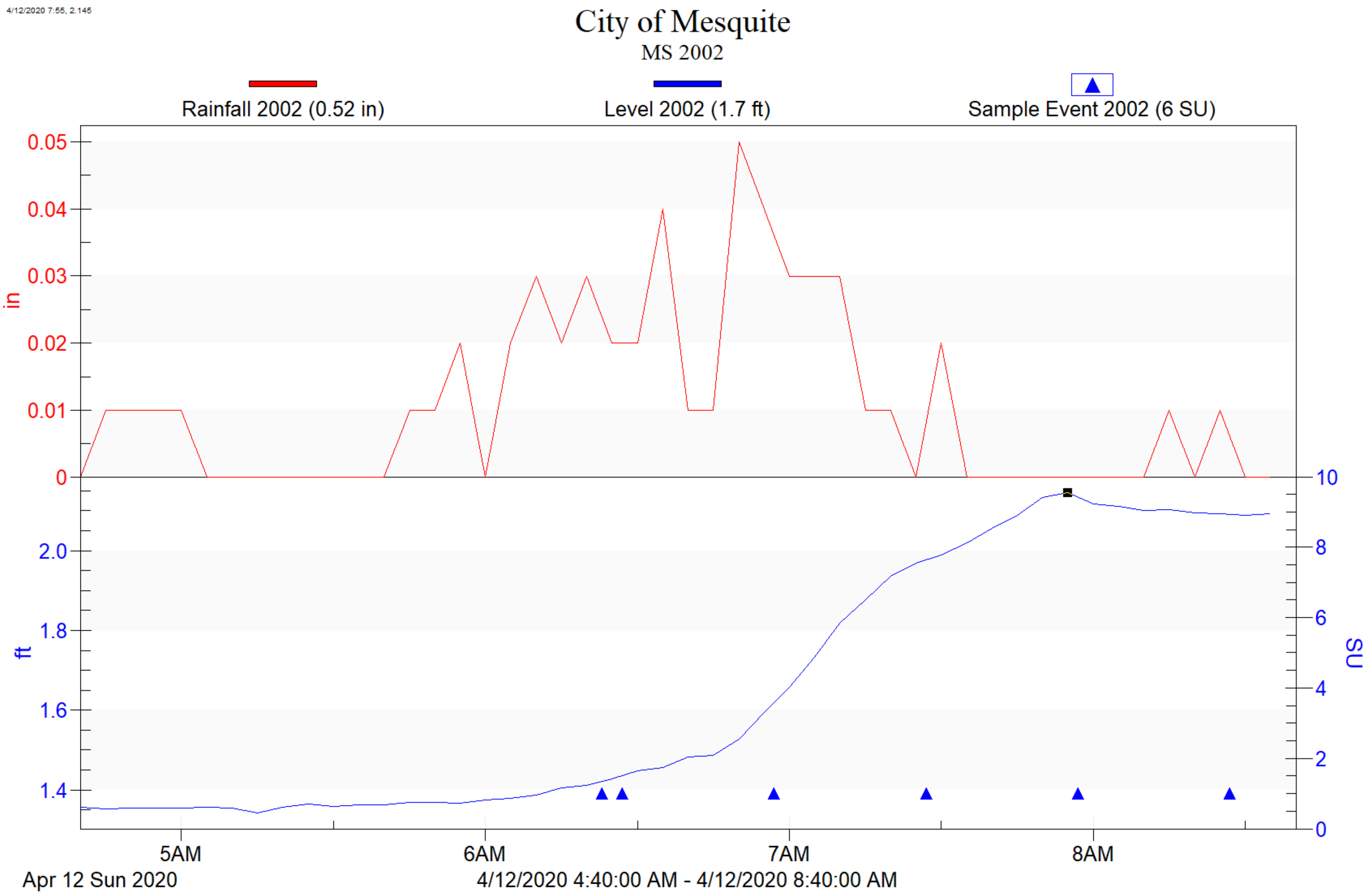
Flow start time and date: 0605 4/12/20
Flow end time and date: 0835 4/12/20

Time first aliquot collected: 0623 4/12/20
Time last aliquot collected: 0827 4/12/20

Peak depth: 2.1 ft Aliquots collected: 6
Average depth: 1.7 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: April 29, 2020
Checked By: Darren Siegmund Date: May 5, 2020


4/12/2020 7:55, 2.145
City of Mesquite
MS 2002
Rainfall 2002 (0.52 in)
Level 2002 (1.7 ft)
Sample Event 2002 (6 SU)
0.05
0.04
0.03
0.02
0.01
0
in
2.0
1.8
1.6
1.4
ft
10
8
6
4
2
0
SU
5AM
6AM
7AM
8AM
Apr 12 Sun 2020
4/12/2020 4:40:00 AM - 4/12/2020 8:40:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF MESQUITE 2020

Storm Event: 4/12/2020 Project Number: 100068194	**MS2001**	**MS2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	258	mg/L
Total Suspended Solids (TSS)	NA	63.8	mg/L
Biochemical Oxygen Demand (BOD)	NA	4.3	mg/L
Chemical Oxygen Demand (COD)	NA	13.5 J	mg/L
Total Nitrogen	NA	2.4	mg/L
Nitrate N	NA	0.72 BL	mg/L
Ammonia N	NA	0.088 J	mg/L
Orthophosphate	NA	0.12	mg/L
Phosphorus, Dissolved	NA	0.11	mg/L
Phosphorus, Total	NA	0.22	mg/L
Atrazine	NA	1.96	µg/L
Arsenic, Total	NA	0.0027	mg/L
Chromium, Total	NA	0.0022 J	mg/L
Copper, Total	NA	0.0055	mg/L
Lead, Total	NA	0.0022	mg/L
Zinc, Total	NA	0.019	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	< 0.36	mg/L
pH	NA	8.4	su
Ambient Air Temperature (field)	NA	67	°F
Water Temperature (field)	NA	65.3	°F
E. Coli	NA	8664	MPN/100 mL
Specific Conductivity	NA	632	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
BL - Data qualified as potentially biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
NORTH TEXAS TOLLWAY AUTHORITY

Sample Collection Report
Event Date: April 28, 2020

Storm Summary

Storm description: A small storm formed to the northwest and moved southeast.

Rain event start time and date:	0440 4/28/20	Rainfall total:	0.18 in
Rain event end time and date:	0520 4/28/20	Peak 1-hr rate:	0.18 in/hr

Rainfall station: NTTA 2001
Antecedent dry period: 209 hrs

Comments: None.

NTTA 2001

Station location description: Unnamed Tributary at SH 161 N. of Gateway Dr.

Flow start time and date: 0450 4/28/20
Flow end time and date: 0700 4/28/20

Time first aliquot collected: 0453 4/28/20
Time last aliquot collected: 0656 4/28/20

Peak depth:	1.6 ft	Aliquots collected:	6
Average depth:	0.8 ft	Total sample volume:	3.5 gal

Comments: None.

Storm Summary

Storm description: A small storm formed to the northwest and moved southeast.

Rain event start time and date:	0459 4/28/20	Rainfall total:	0.40 in
Rain event end time and date:	0516 4/28/20	Peak 1-hr rate:	0.40 in/hr

Rainfall station:	GPTX 26080
Antecedent dry period:	382 hrs

Comments: GPTX 26080 weather station located at N Cottonwood and Great Southwest Parkway (https://gptx.onerain.com/home.php).

NTTA 2002

Station location description: Cottonwood Creek at SH 161 S. of Dickey Road

Flow start time and date:	0505 4/28/20
Flow end time and date:	1005 4/28/20
Time first aliquot collected:	0515 4/28/20
Time last aliquot collected:	0719 4/28/20

Peak depth:	2.3 ft	Aliquots collected:	6
Average depth:	1.8 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

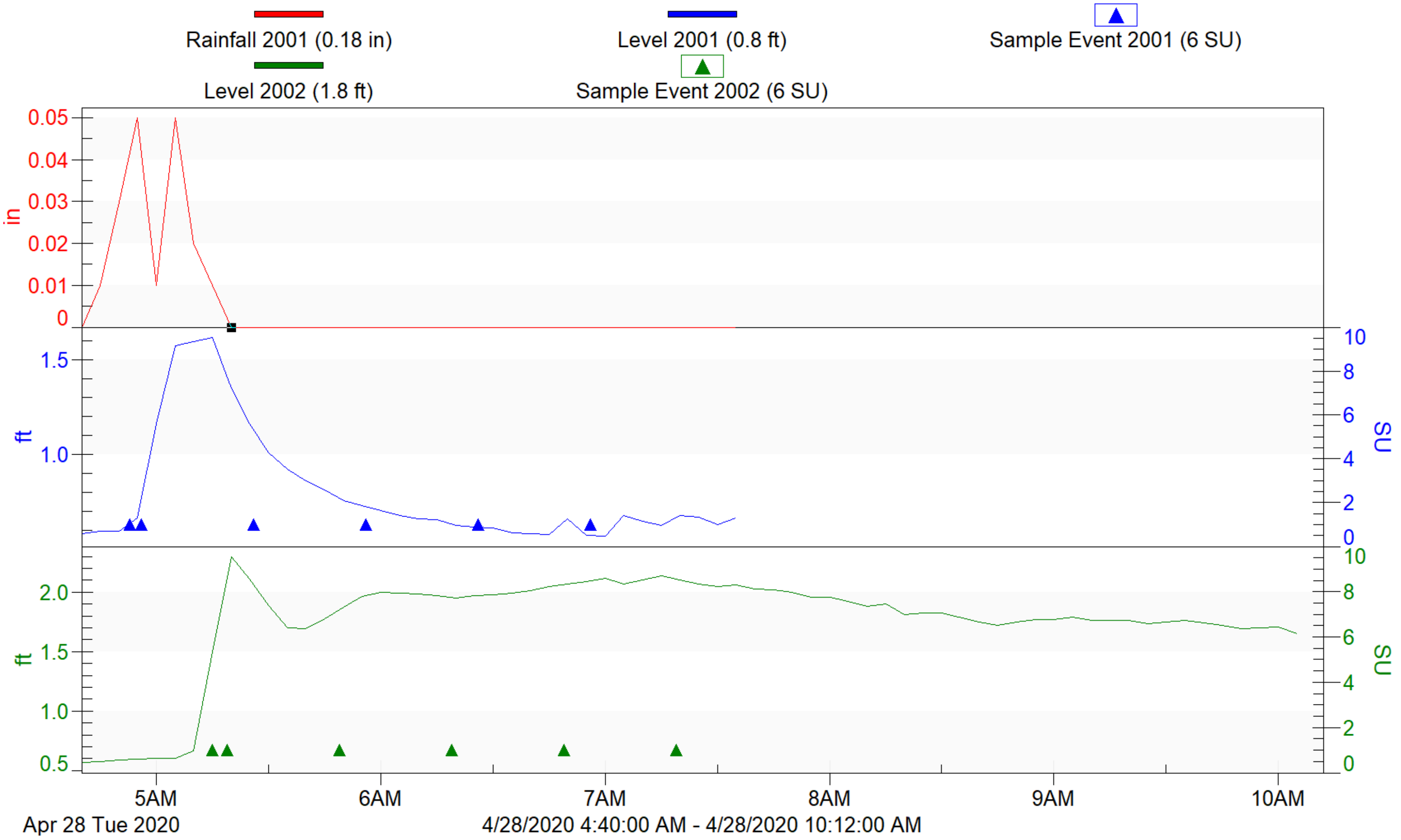
Prepared By: Adam Gottlieb Date: April 29, 2020

Checked By: Darren Siegmund Date: May 5, 2020

4/28/2020 5:20, 0.000

North Texas Tollway Authority

NTTA 2001, 2002



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
NORTH TEXAS TOLLWAY AUTHORITY 2020

Storm Event: 4/28/2020 Project Number: 100068194	**NT2001**	**NT2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	177	216	mg/L
Total Suspended Solids (TSS)	77.7	108	mg/L
Biochemical Oxygen Demand (BOD)	10	8.0	mg/L
Chemical Oxygen Demand (COD)	< 10	< 10	mg/L
Total Nitrogen	3.5	1.5	mg/L
Nitrate N	1.1	0.19	mg/L
Ammonia N	0.37	0.15	mg/L
Orthophosphate	0.051	< 0.020	mg/L
Phosphorus, Dissolved	0.085	0.032 J	mg/L
Phosphorus, Total	0.19	0.22	mg/L
Atrazine	0.172	0.210	µg/L
Arsenic, Total	0.0019	0.0037	mg/L
Chromium, Total	0.0062	0.0040	mg/L
Copper, Total	0.0089	0.0023	mg/L
Lead, Total	0.0024	0.0036	mg/L
Zinc, Total	0.069	0.061	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	0.80 J	1.1 J	mg/L
pH	8.4	9.0	su
Ambient Air Temperature (field)	68	68	°F
Water Temperature (field)	70.1	69.5	°F
E. Coli	12997.0	959.0	MPN/100 mL
Specific Conductivity	719	114	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected

Member of the SNC-Lavalin Group

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF PLANO

Sample Collection Report
Event Date: April 12, 2020

Storm Summary

Storm description: Moderate rain formed to the southwest and moved northeast.

Rain event start time and date:	0539 4/12/20	Rainfall total:	0.40 in
Rain event end time and date:	0724 4/12/20	Peak 1-hr rate:	0.28 in/hr

Rainfall station: KTXPLANO105
Antecedent dry period: 182 hrs

Comments: The storm summary was calculated using data from the KTXPLANO105 weather station located in Creek Trails, Plano (www.wunderground.com/weatherstation).

PL 2001

Station location description: Rowlett Creek at Alma Drive

Flow start time and date: 0610 4/12/20
Flow end time and date: 0900 4/12/20

Time first aliquot collected: 0618 4/12/20
Time last aliquot collected: 0854 4/12/20

Peak depth:	6.8 ft	Aliquots collected:	6
Average depth:	3.8 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities. The gap in time following the first aliquot is due to a sampler error which was corrected and sampling resumed.

PL 2002

Station location description: Rowlett Creek in Oak Point Park

Flow start time and date: 0640 4/12/20
Flow end time and date: 0925 4/12/20

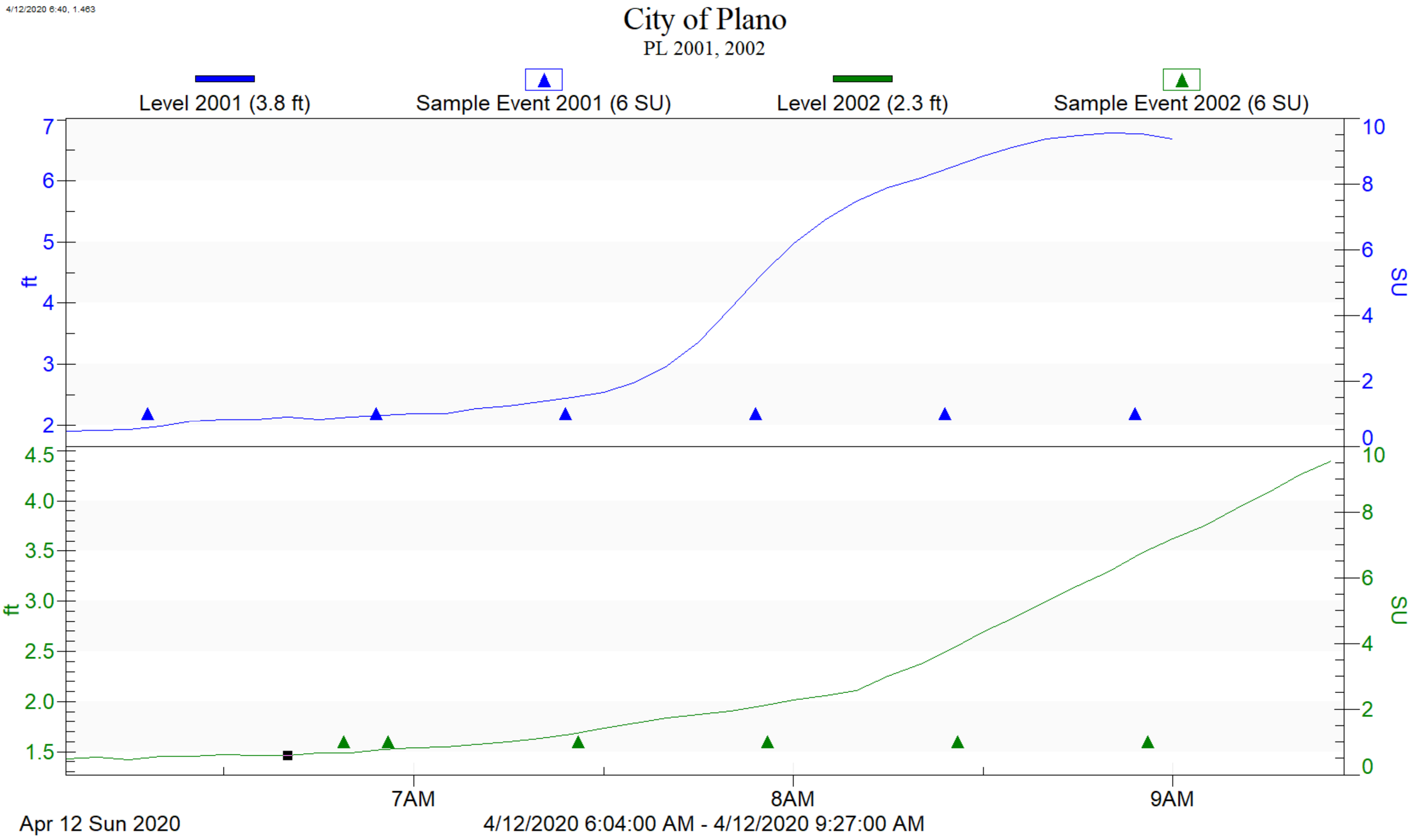
Time first aliquot collected: 0649 4/12/20
Time last aliquot collected: 0856 4/12/20

Peak depth:	4.4 ft	Aliquots collected:	6
Average depth:	2.3 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and peak and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: April 28, 2020

Checked By: Darren Siegmund Date: May 5, 2020


4/12/2020 6:40, 1.463
City of Plano
PL 2001, 2002
Level 2001 (3.8 ft)
Sample Event 2001 (6 SU)
Level 2002 (2.3 ft)
Sample Event 2002 (6 SU)
ft
SU
7
6
5
4
3
2
10
8
6
4
2
0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
7AM
8AM
9AM
Apr 12 Sun 2020
4/12/2020 6:04:00 AM - 4/12/2020 9:27:00 AM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF PLANO 2020

Storm Event: 4/12/2020 Project Number: 100068194	**PL2001**	**PL2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	269	376	mg/L
Total Suspended Solids (TSS)	203	21.5	mg/L
Biochemical Oxygen Demand (BOD)	3.4 R6	< 2.0	mg/L
Chemical Oxygen Demand (COD)	< 10	< 10	mg/L
Total Nitrogen	3.7	2.1	mg/L
Nitrate N	1.2 BL	1.6 BL	mg/L
Ammonia N	0.11	< 0.028	mg/L
Orthophosphate	0.073	0.050	mg/L
Phosphorus, Dissolved	0.019 J	< 0.018	mg/L
Phosphorus, Total	0.65	0.24	mg/L
Atrazine	0.602	0.338	µg/L
Arsenic, Total	0.0041	0.0021	mg/L
Chromium, Total	0.012	0.0038	mg/L
Copper, Total	0.014	0.0047	mg/L
Lead, Total	0.0060	0.0023	mg/L
Zinc, Total	0.054	0.017	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.38	< 0.35	mg/L
pH	8.32	8.31	su
Ambient Air Temperature (field)	66	66	°F
Water Temperature (field)	65.8	65.5	°F
E. Coli	8664	884	MPN/100 mL
Specific Conductivity	517	776	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
R6 - The RPD between valid sample dilutions exceeded 30%
BL - Data qualified as potentially biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100068194
City of Arlington 2020

Sample Collection Report
Event Date: July 6, 2020

Storm Summary

Storm description: Heavy rain moving from west to east.

Rain event start time and date: 0555 07/06/20 Rainfall total: 1.04 in
Rain event end time and date: 0830 07/06/20 Peak 1-hr rate: 1.00 in/hr

Rainfall station: Rush Creek @ West Sublett Road (6650)
Antecedent dry period: 82 hrs

Comments: Antecedent dry period determined by Rush Creek @ West Sublett Road (6650) from https://gptx.onerain.com/home.php.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Flow start time and date: 0555 07/06/20 Time first aliquot collected: 0614 07/06/20
Flow end time and date: 2100 07/06/20 Time last aliquot collected: 0838 07/06/20

Peak depth: 2.828 ft Aliquots collected: 6
Average depth: 0.491 ft Total sample volume: 3.5 gal

Comments: None

AR 2002

Station location description: Rush Creek @ Woodland Park Blvd.

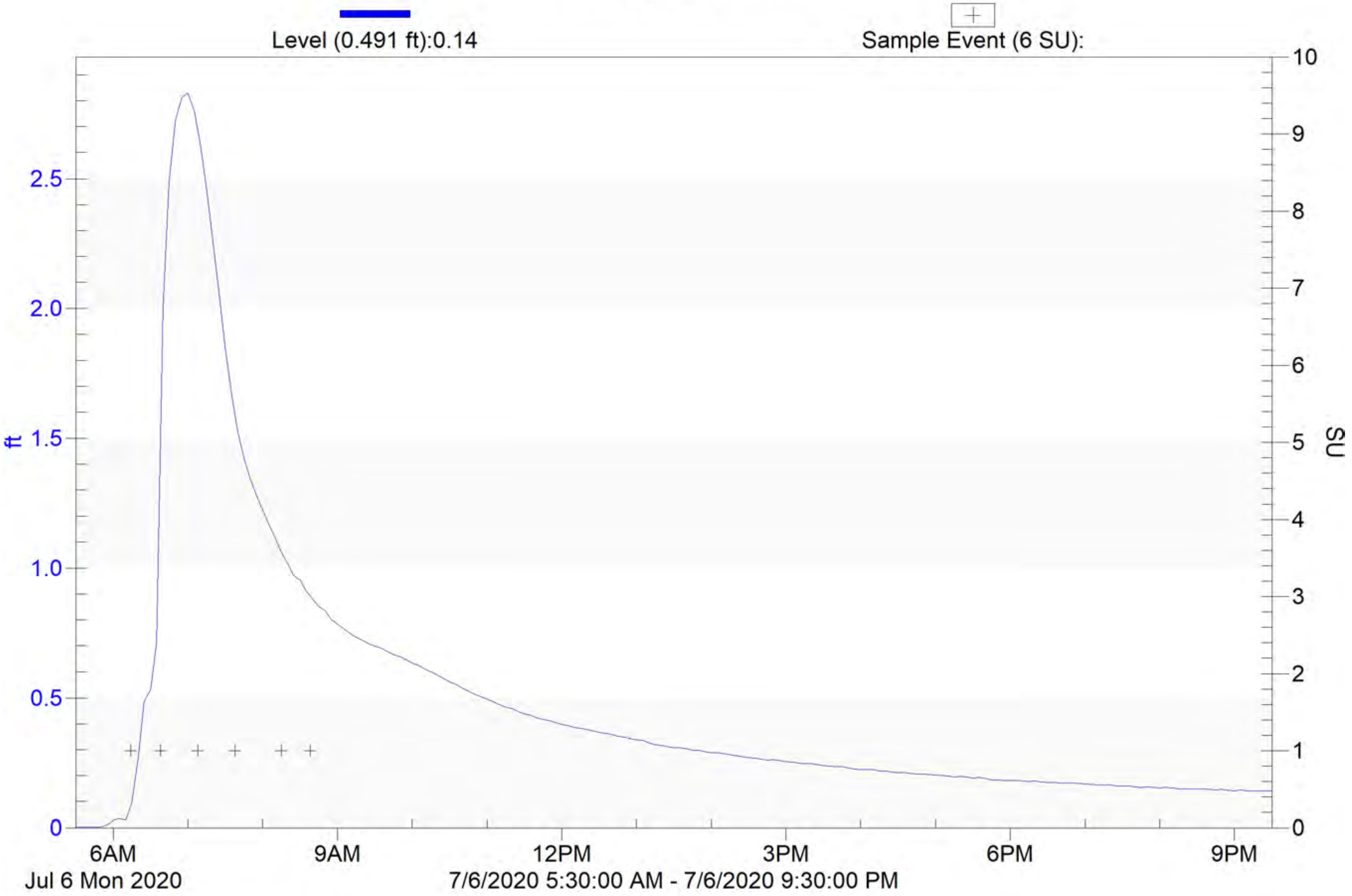
Comments: The sampler triggered correctly and began sampling on 7/6/2020; however, an insufficient volume of water was collected for sample analysis.

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.08.06 12:55:44-05'00' Date: ____________

Checked By: Charles Gaddy Date: 08/10/2020

Arlington Rush Creek

AR2001-3



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194
CITY OF ARLINGTON 2020

Storm Event: 7/6/2020 Project Number: 100068194	AR2001	AR2002	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	150	NA	mg/L
Total Suspended Solids (TSS)	159	NA	mg/L
Biochemical Oxygen Demand (BOD)	7.2	NA	mg/L
Chemical Oxygen Demand (COD)	35.6	NA	mg/L
Total Nitrogen	3.1	NA	mg/L
Nitrate N	0.52	NA	mg/L
Ammonia N	0.15	NA	mg/L
Orthophosphate	0.13 M1	NA	mg/L
Phosphorus, Dissolved	0.12 M1, R1	NA	mg/L
Phosphorus, Total	0.41	NA	mg/L
Atrazine	0.291	NA	µg/L
Arsenic, Total	0.0027	NA	mg/L
Chromium, Total	0.0048	NA	mg/L
Copper, Total	0.0098	NA	mg/L
Lead, Total	0.0043	NA	mg/L
Zinc, Total	0.049	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.36	NA	mg/L
pH	7.9	NA	su
Ambient Air Temperature (field)	79	NA	°F
Water Temperature (field)	79.3	NA	°F
E. Coli	12033.0	NA	MPN/100 mL
Specific Conductivity	523	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery
R1 - RPD value was outside control limits

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100068194
City of Arlington 2020

Sample Collection Report
Event Date: July 28, 2020

Storm Summary

Storm description: Moderate rain moving from northwest to southeast.

Rain event start time and date: 1325 07/28/20 Rainfall total: 0.2 in
Rain event end time and date: 1605 07/28/20 Peak 1-hr rate: 0.12 in/hr

Rainfall station: Rush Creek @ Woodland Park Blvd (6610)
Antecedent dry period: 533 hrs

Comments: Antecedent dry period determined by Rush Creek @ Woodland Park Blvd (6610) from https://gptx.onerain.com/home.php.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Comments: AR2001 was collected previously during the 7/6/2020 rain event.

AR 2002

Station location description: Rush Creek @ Woodland Park Blvd.

Flow start time and date: 1305 07/28/20 Time first aliquot collected: 1328 07/28/20
Flow end time and date: 2020 07/28/20 Time last aliquot collected: 1532 07/28/20

Peak depth: 0.675 ft Aliquots collected: 6
Average depth: 0.549 ft Total sample volume: 3.5 gal

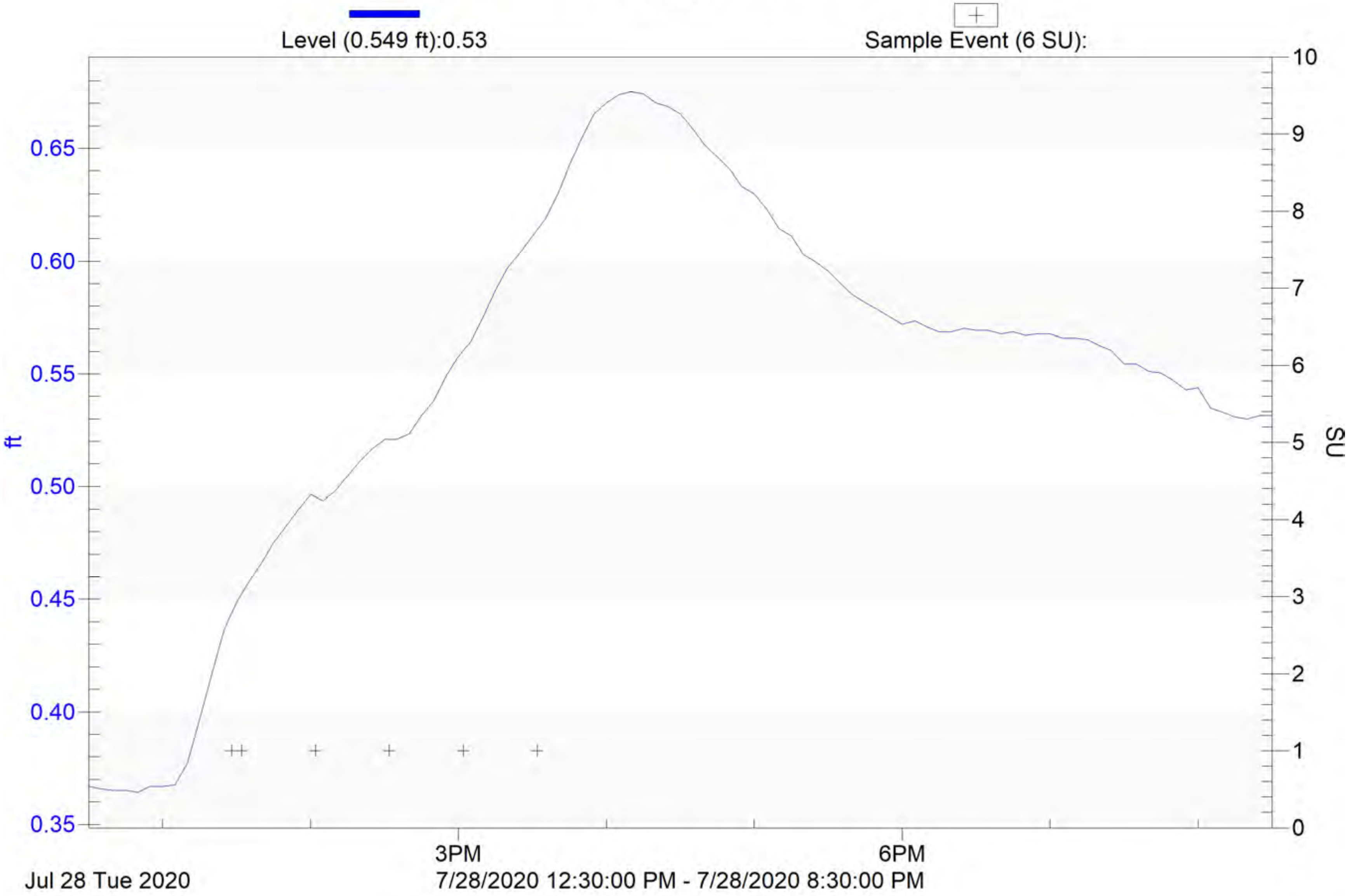
Comments: Due to the scattered nature of the storm event, the rain event start time follows the flow start time. Rainfall began falling in the watershed at locations upstream of the Rush Creek @ Woodland Park Blvd (6610) rain gauge prior to the flow start time. The flow end time was determined by the next storm event flow start time.

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.08.06 12:49:30-05'00' Date: ____________

Checked By: Charles Goddy Date: 08/10/2020

Arlington Rush Creek

AR2002-3



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF ARLINGTON 2020

Storm Event: 7/28/2020 Project Number: 100068194	**AR2001**	**AR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	650	mg/L
Total Suspended Solids (TSS)	NA	9.9	mg/L
Biochemical Oxygen Demand (BOD)	NA	2.6 B3, L2	mg/L
Chemical Oxygen Demand (COD)	NA	< 10	mg/L
Total Nitrogen	NA	0.41	mg/L
Nitrate N	NA	0.14	mg/L
Ammonia N	NA	< 0.028	mg/L
Orthophosphate	NA	< 0.020	mg/L
Phosphorus, Dissolved	NA	< 0.015	mg/L
Phosphorus, Total	NA	0.024 J	mg/L
Atrazine	NA	< 0.100	µg/L
Arsenic, Total	NA	0.00092	mg/L
Chromium, Total	NA	0.00067 J	mg/L
Copper, Total	NA	0.0012 J	mg/L
Lead, Total	NA	0.00032 J	mg/L
Zinc, Total	NA	0.0042 J	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.7 J	mg/L
pH	NA	7.9	su
Ambient Air Temperature (field)	NA	79	°F
Water Temperature (field)	NA	79.1	°F
E. Coli	NA	52.0	MPN/100 mL
Specific Conductivity	NA	990	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
L2 - Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: August 16, 2020

Storm Summary

Storm description: Heavy rain formed in the north and moved south.

Rain event start time and date: 1945 8/16/20 Rainfall total: 0.52 in
Rain event end time and date: 2250 8/16/20 Peak 1-hr rate: 0.45 in/hr

Rainfall station: GA 2002
Antecedent dry period: 404 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Comments: A sample was successfully collected on July 28th.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Flow start time and date: 2005 8/16/20
Flow end time and date: 1120 8/17/20

Time first aliquot collected: 2010 8/16/20
Time last aliquot collected: 2213 8/16/20

Peak depth: 9.3 ft Aliquots collected: 6
Average depth: 5.6 ft Total sample volume: 3.5 gal

Comments: None

GA 2003

Station location description: Rowlett Creek at Highway 66

Flow start time and date: 2000 8/16/20
Flow end time and date: 1050 8/17/20

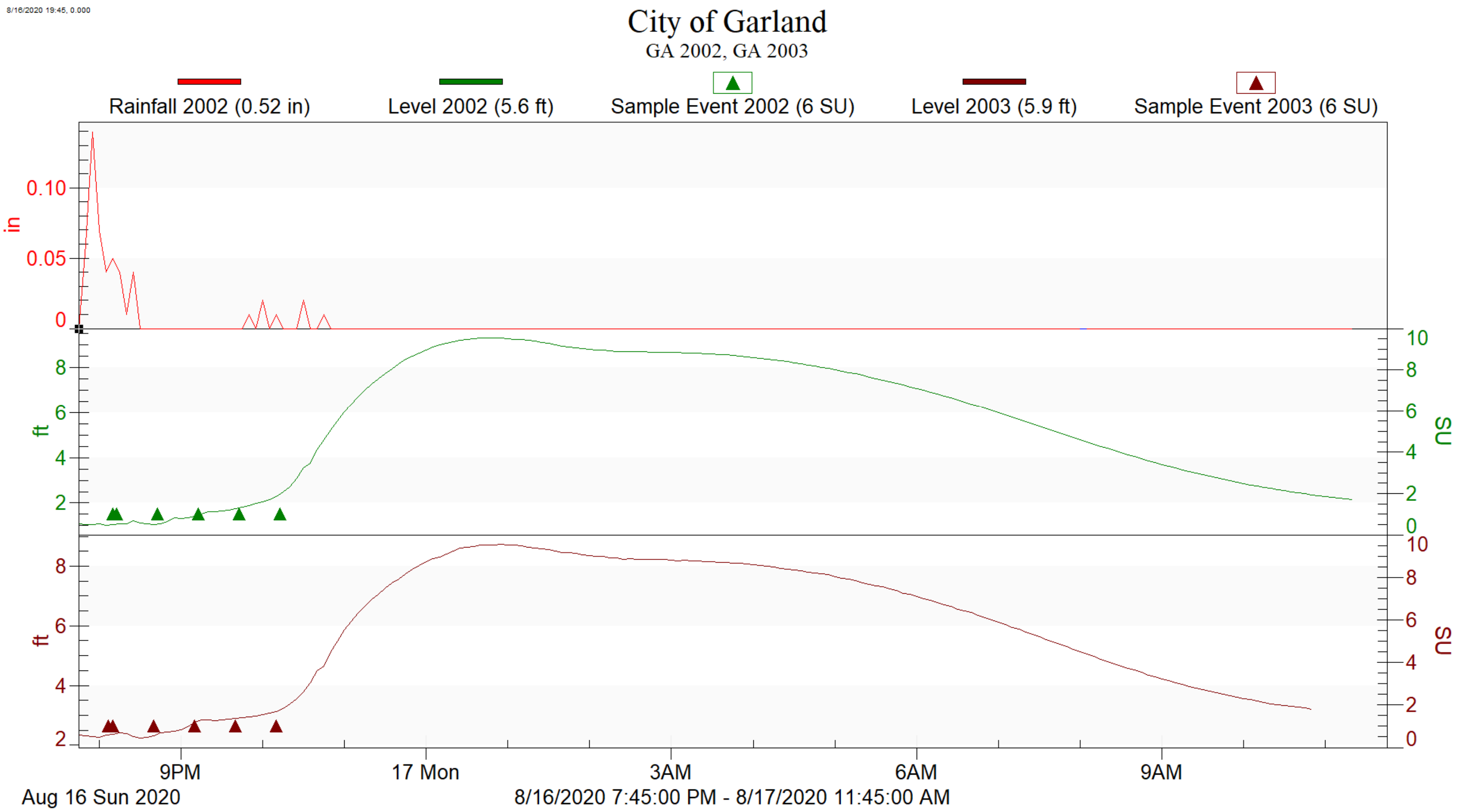
Time first aliquot collected: 2007 8/16/20
Time last aliquot collected: 2210 8/16/20

Peak depth:	8.7 ft	Aliquots collected:	6
Average depth:	5.9 ft	Total sample volume:	3.5 gal

Comments: None

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020


8/16/2020 19:45, 0.000
City of Garland
GA 2002, GA 2003
Rainfall 2002 (0.52 in)
Level 2002 (5.6 ft)
Sample Event 2002 (6 SU)
Level 2003 (5.9 ft)
Sample Event 2003 (6 SU)
in
0.10
0.05
0
ft
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17 Mon
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Aug 16 Sun 2020
8/16/2020 7:45:00 PM - 8/17/2020 11:45:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF GARLAND 2020

Storm Event: 8/16/2020 Project Number: 100068194	GA2001	GA2002	GA2003	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	449	561	mg/L
Total Suspended Solids (TSS)	NA	135	39.6	mg/L
Biochemical Oxygen Demand (BOD)	NA	8.4	5.6	mg/L
Chemical Oxygen Demand (COD)	NA	24.7 J	< 10	mg/L
Total Nitrogen	NA	9.1	12.1	mg/L
Nitrate N	NA	8.0	11.2	mg/L
Ammonia N	NA	0.15	0.087 J	mg/L
Orthophosphate	NA	0.39	0.46	mg/L
Phosphorus, Dissolved	NA	0.46	0.45	mg/L
Phosphorus, Total	NA	0.52	0.55	mg/L
Atrazine	NA	0.083 J	0.091 J	µg/L
Arsenic, Total	NA	0.0027	0.0021	mg/L
Chromium, Total	NA	0.0046	0.0018 J	mg/L
Copper, Total	NA	0.0062	0.0044	mg/L
Lead, Total	NA	0.0028	0.0015	mg/L
Zinc, Total	NA	0.027	0.026	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.8 J, M1	0.39 J	mg/L
pH	NA	8.28	8.05	su
Ambient Air Temperature (field)	NA	99	75	°F
Water Temperature (field)	NA	84.3	81.6	°F
E. Coli	NA	9208.0	97.0 D6	MPN/100 mL
Specific Conductivity	NA	889	1010	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits
M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF GARLAND

Sample Collection Report
Event Date: July 28, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date:	1110 7/28/20	Rainfall total:	1.70 in
Rain event end time and date:	1545 7/28/20	Peak 1-hr rate:	1.45 in/hr

Rainfall station: GA 2002
Antecedent dry period: 545 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Flow start time and date: 1340 7/28/20
Flow end time and date: 1105 7/29/20

Time first aliquot collected: 1342 7/28/20
Time last aliquot collected: 1545 7/28/20

Peak depth:	1.8 ft	Aliquots collected:	6
Average depth:	0.9 ft	Total sample volume:	3.5 gal

Comments: None

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Comments: A sample was not successfully collected during the first flush and was therefore ineligible for analysis.

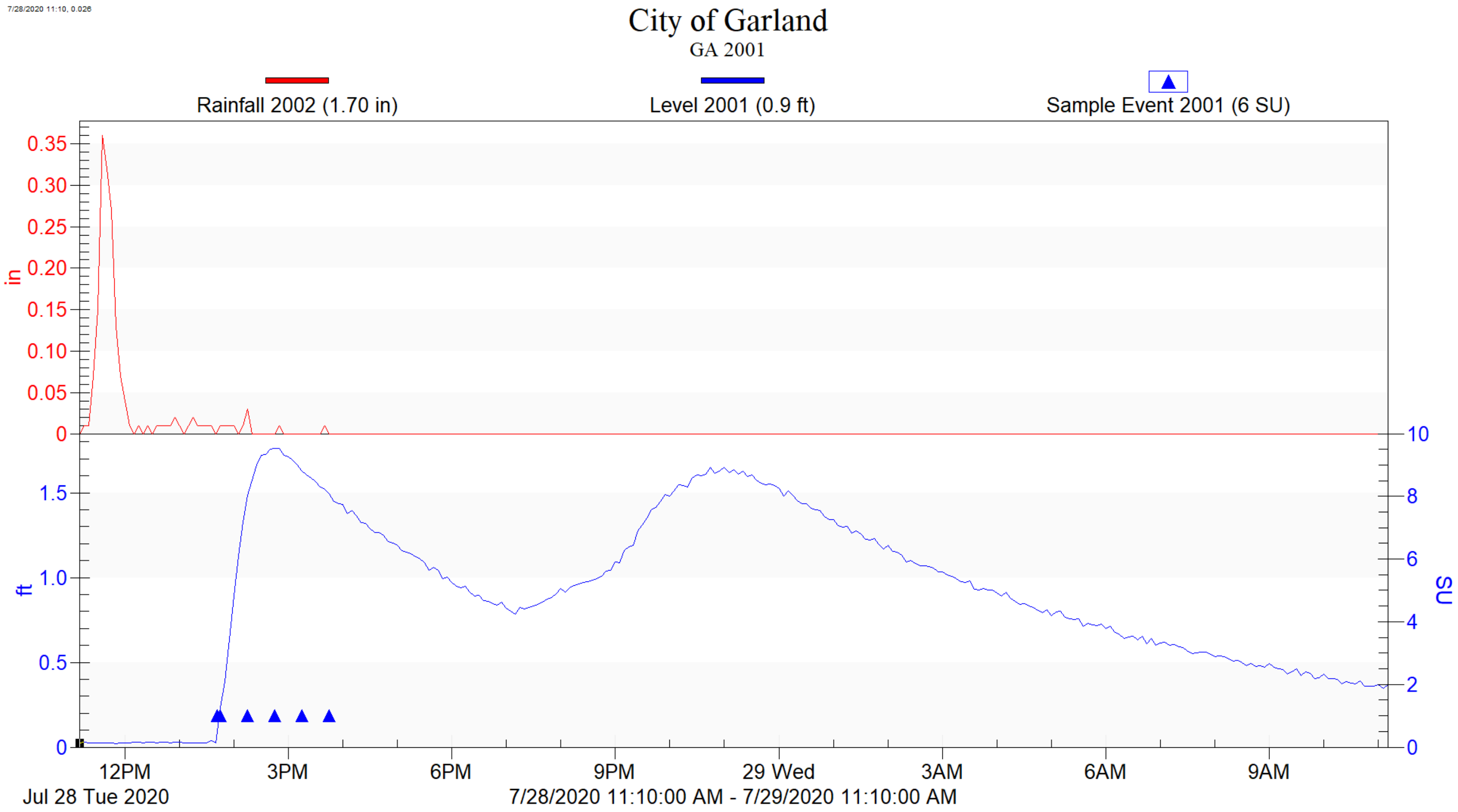
GA 2003

Station location description: Rowlett Creek at Highway 66

Comments: A successful sample was not collected due to the sampler falsely triggering prior to the event.

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020


7/28/2020 11:10, 0.026
City of Garland
GA 2001
Rainfall 2002 (1.70 in)
Level 2001 (0.9 ft)
Sample Event 2001 (6 SU)
in
0.35
0.30
0.25
0.20
0.15
0.10
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ft
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1.0
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7/28/2020 11:10:00 AM - 7/29/2020 11:10:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF GARLAND 2020

Storm Event: 7/28/2020 Project Number: 100068194	**GA2001**	**GA2002**	**GA2003**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	490	NA	NA	mg/L
Total Suspended Solids (TSS)	32.6	NA	NA	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0 B3, L2	NA	NA	mg/L
Chemical Oxygen Demand (COD)	13.3 J	NA	NA	mg/L
Total Nitrogen	9.5	NA	NA	mg/L
Nitrate N	8.6	NA	NA	mg/L
Ammonia N	0.078 J	NA	NA	mg/L
Orthophosphate	0.31	NA	NA	mg/L
Phosphorus, Dissolved	0.32	NA	NA	mg/L
Phosphorus, Total	0.36	NA	NA	mg/L
Atrazine	0.066 J	NA	NA	µg/L
Arsenic, Total	0.0019	NA	NA	mg/L
Chromium, Total	0.0020 J	NA	NA	mg/L
Copper, Total	0.0039	NA	NA	mg/L
Lead, Total	0.0011	NA	NA	mg/L
Zinc, Total	0.020	NA	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	0.71 J	NA	NA	mg/L
pH	8.17	NA	NA	su
Ambient Air Temperature (field)	76	NA	NA	°F
Water Temperature (field)	79.7	NA	NA	°F
E. Coli	272.0 D6	NA	NA	MPN/100 mL
Specific Conductivity	844	NA	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
L2 - Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100068194
City of Irving 2020

Sample Collection Report
Event Date: July 28, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date: 1025 07/28/20 Rainfall total: 1 in
Rain event end time and date: 1510 07/28/20 Peak 1-hr rate: 0.86 in/hr

Rainfall station: KDFW – DFW International Airport
Antecedent dry period: 544.5 hrs

Comments: Antecedent dry period determined from DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Flow start time and date: 1100 07/28/20 Time first aliquot collected: 1105 07/28/20
Flow end time and date: 2250 07/28/20 Time last aliquot collected: 1309 07/28/20

Peak depth: 0.660 ft Aliquots collected: 6
Average depth: 0.328 ft Total sample volume: 3.5 gal

Comments: None

IR 2002

Station location description: Estelle Branch @ Rochelle Road

Flow start time and date: 1040 07/28/20 Time first aliquot collected: 1044 07/28/20
Flow end time and date: 1800 07/28/20 Time last aliquot collected: 1248 07/28/20

Peak depth: 0.649 ft Aliquots collected: 6
Average depth: 0.156 ft Total sample volume: 3.5 gal

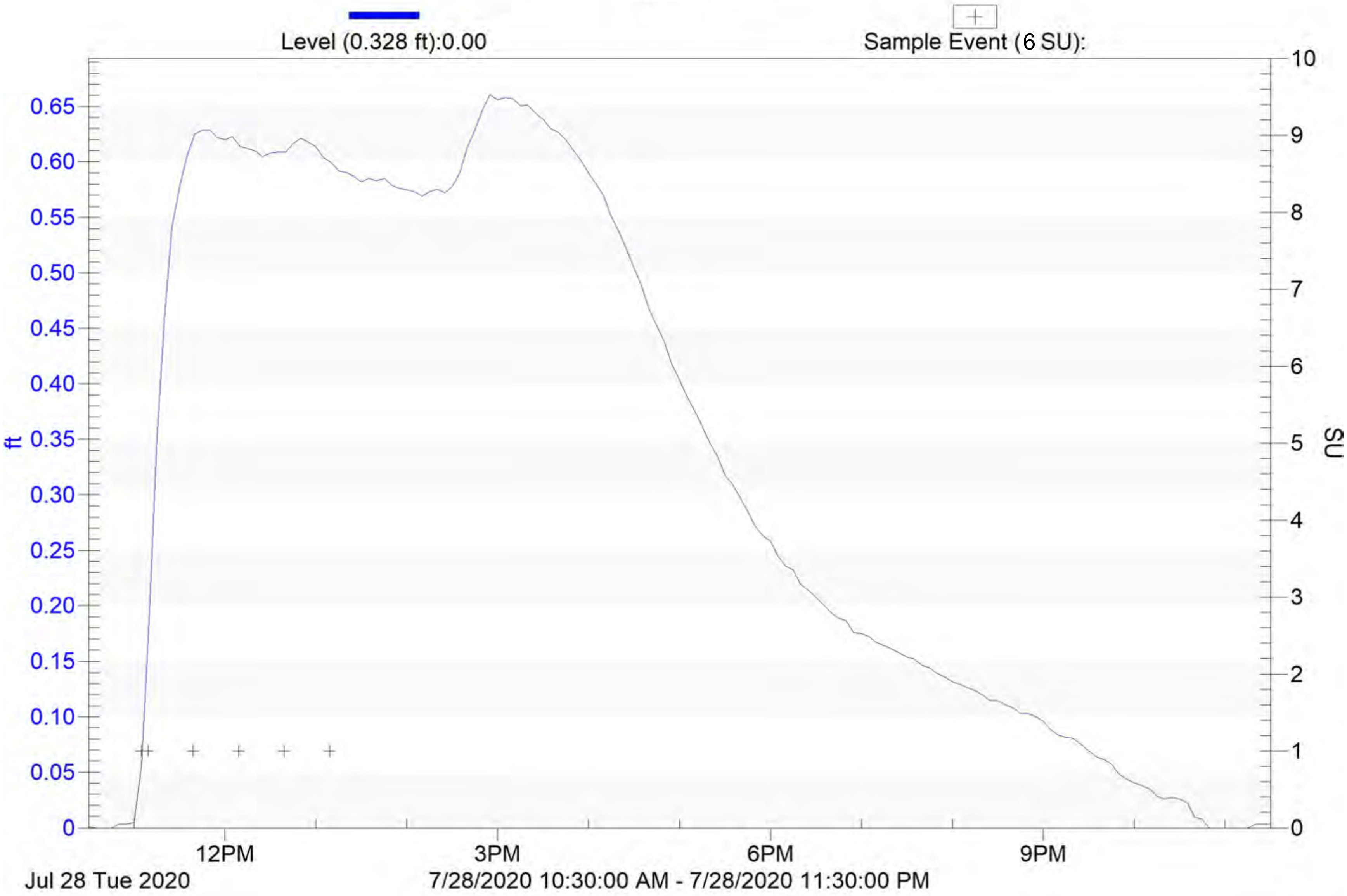
Comments: None

Prepared By: Ryan Deal Digitally signed by Ryan Deal Date: 2020.08.06 12:35:18-05'00' Date:

Checked By: Charles P Daddy Date: 08/10/2020

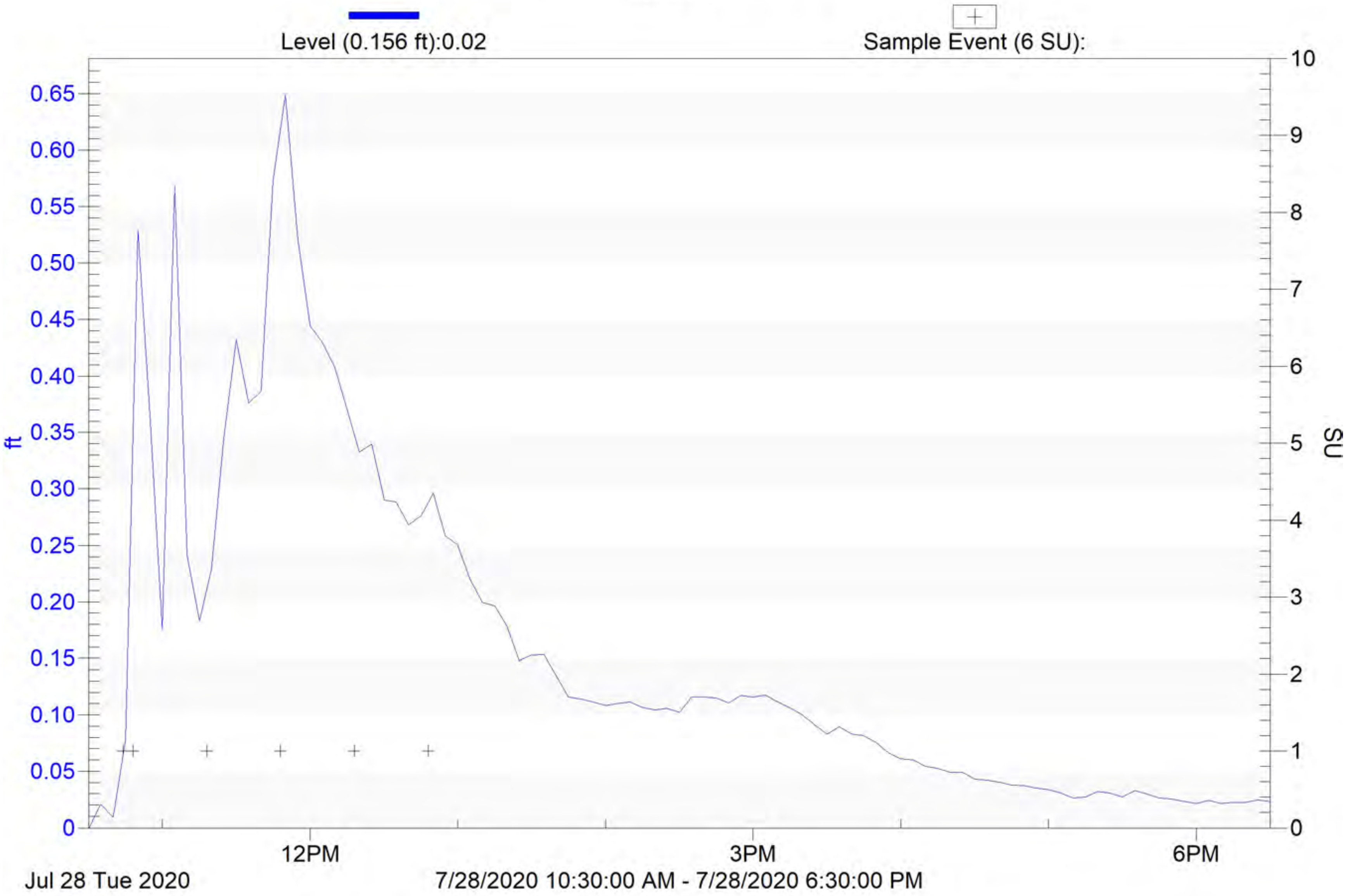
Irving Grapevine Creek

IR2001-3



Irving Estelle Branch

IR2002-3



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF IRVING 2020

Storm Event: 7/28/2020 Project Number: 100068194	**IR2001**	**IR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	341	129	mg/L
Total Suspended Solids (TSS)	45.0	542 D6	mg/L
Biochemical Oxygen Demand (BOD)	6.3 B3, L2	8.7 B3, L2	mg/L
Chemical Oxygen Demand (COD)	< 10	< 10	mg/L
Total Nitrogen	1.6	1.6	mg/L
Nitrate N	0.61	0.42	mg/L
Ammonia N	0.13	0.10	mg/L
Orthophosphate	0.055	0.15	mg/L
Phosphorus, Dissolved	0.066	0.088	mg/L
Phosphorus, Total	0.13	0.31	mg/L
Atrazine	< 0.100	< 0.100	µg/L
Arsenic, Total	0.0030	0.0060	mg/L
Chromium, Total	0.0041	0.016	mg/L
Copper, Total	0.0081	0.012	mg/L
Lead, Total	0.0021	0.0054	mg/L
Zinc, Total	0.044	0.052	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.8 J	3.2 J	mg/L
pH	8.8	8.8	su
Ambient Air Temperature (field)	78	78	°F
Water Temperature (field)	79.4	80.1	°F
E. Coli	331.0	4611.0	MPN/100 mL
Specific Conductivity	1030	202	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
L2 - Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF MESQUITE

Sample Collection Report
Event Date: July 28, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date: 1124 7/28/20 Rainfall total: 1.10 in
Rain event end time and date: 1414 7/28/20 Peak 1-hr rate: 0.85 in/hr

Rainfall station: KTXMESQU49
Antecedent dry period: 529 hrs

Comments: The antecedent dry period was calculated using data from MS 2002 and the storm summary was determined using data from KTXMESQU49 weather station located at Creek Crossing Mesquite, TX (www.wunderground.com/weatherstation).

MS 2001

Station location description: North of New Market Road

Flow start time and date: 1200 7/28/20
Flow end time and date: 1425 7/28/20

Time first aliquot collected: 1203 7/28/20
Time last aliquot collected: 1407 7/28/20

Peak depth: 9.7 ft Aliquots collected: 6
Average depth: 6.9 ft Total sample volume: 3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities. Multiple pumping cycles were needed to collect the final sample.

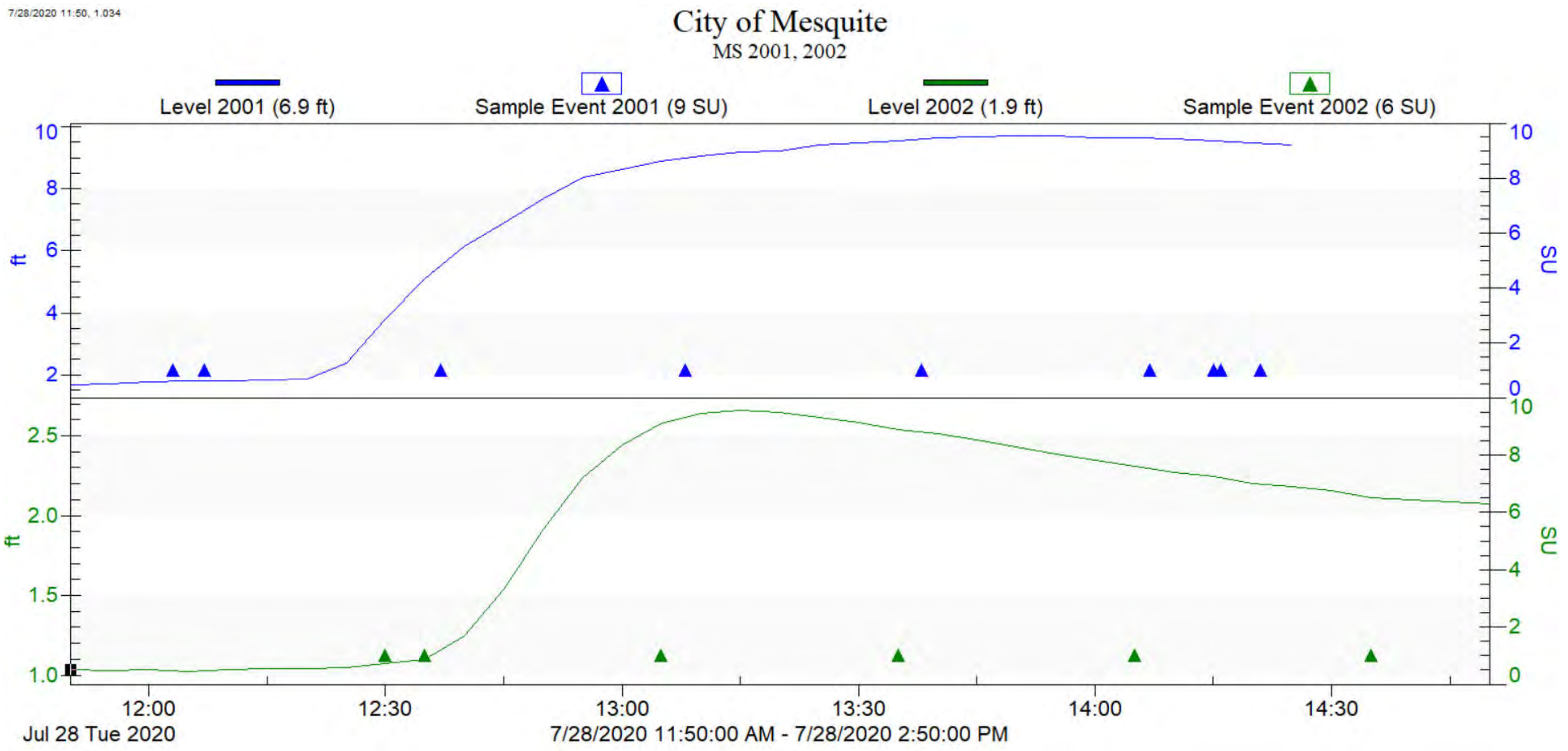
MS 2002

Station location description:	North Mesquite Creek at Edward’s Church		
Flow start time and date:	1225 7/28/20		
Flow end time and date:	1450 7/28/20		
Time first aliquot collected:	1230 7/28/20		
Time last aliquot collected:	1435 7/28/20		
Peak depth:	2.7 ft	Aliquots collected:	6
Average depth:	1.9 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020


7/28/2020 11:50, 1.034
City of Mesquite
MS 2001, 2002
Level 2001 (6.9 ft)
Sample Event 2001 (9 SU)
Level 2002 (1.9 ft)
Sample Event 2002 (6 SU)
ft
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8
6
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14:30
Jul 28 Tue 2020
7/28/2020 11:50:00 AM - 7/28/2020 2:50:00 PM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

CITY OF MESQUITE 2020

Storm Event: 7/28/2020 Project Number: 100068194	**MS2001**	**MS2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	216	140	mg/L
Total Suspended Solids (TSS)	1010	317	mg/L
Biochemical Oxygen Demand (BOD)	5.2 B3, L2	10.9 B3, L2	mg/L
Chemical Oxygen Demand (COD)	138	< 10	mg/L
Total Nitrogen	4.2	1.4	mg/L
Nitrate N	0.27	0.41	mg/L
Ammonia N	0.079 J	0.079 J	mg/L
Orthophosphate	0.13	0.091	mg/L
Phosphorus, Dissolved	0.058	0.076	mg/L
Phosphorus, Total	0.63 D3	0.24	mg/L
Atrazine	< 0.100	0.116	µg/L
Arsenic, Total	0.0060	0.0039	mg/L
Chromium, Total	0.022	0.0059	mg/L
Copper, Total	0.020	0.0089	mg/L
Lead, Total	0.022	0.0057	mg/L
Zinc, Total	0.13	0.042	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.5 J	3.0 J	mg/L
pH	7.20	7.68	su
Ambient Air Temperature (field)	81	81	°F
Water Temperature (field)	80.0	78.9	°F
E. Coli	2481.0	464.0	MPN/100 mL
Specific Conductivity	1156	412	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
L2 - Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low
D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
NORTH TEXAS TOLLWAY AUTHORITY

Sample Collection Report
Event Date: July 28, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date:	1030 7/28/20	Rainfall total:	0.73 in
Rain event end time and date:	1515 7/28/20	Peak 1-hr rate:	0.61 in/hr

Rainfall station:	NTTA 2001
Antecedent dry period:	544 hrs

Comments: None

NTTA 2001

Station location description: Unnamed Tributary at SH 161 N. of Gateway Dr.

Flow start time and date:	1040 7/28/20
Flow end time and date:	1700 7/28/20

Time first aliquot collected:	1044 7/28/20
Time last aliquot collected:	1248 7/28/20

Peak depth:	2.8 ft	Aliquots collected:	6
Average depth:	0.8 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Storm Summary

Storm description: Moderate rain moving from northwest to southeast.

Rain event start time and date:	1220 7/28/20	Rainfall total:	0.21 in
Rain event end time and date:	1610 7/28/20	Peak 1-hr rate:	0.11 in/hr

Rainfall station:	NTTA 2002
Antecedent dry period:	531 hrs

Comments: None

NTTA 2002

Station location description: Cottonwood Creek at SH 161 S. of Dickey Road

Flow start time and date:	1300 7/28/20
Flow end time and date:	1735 7/28/20

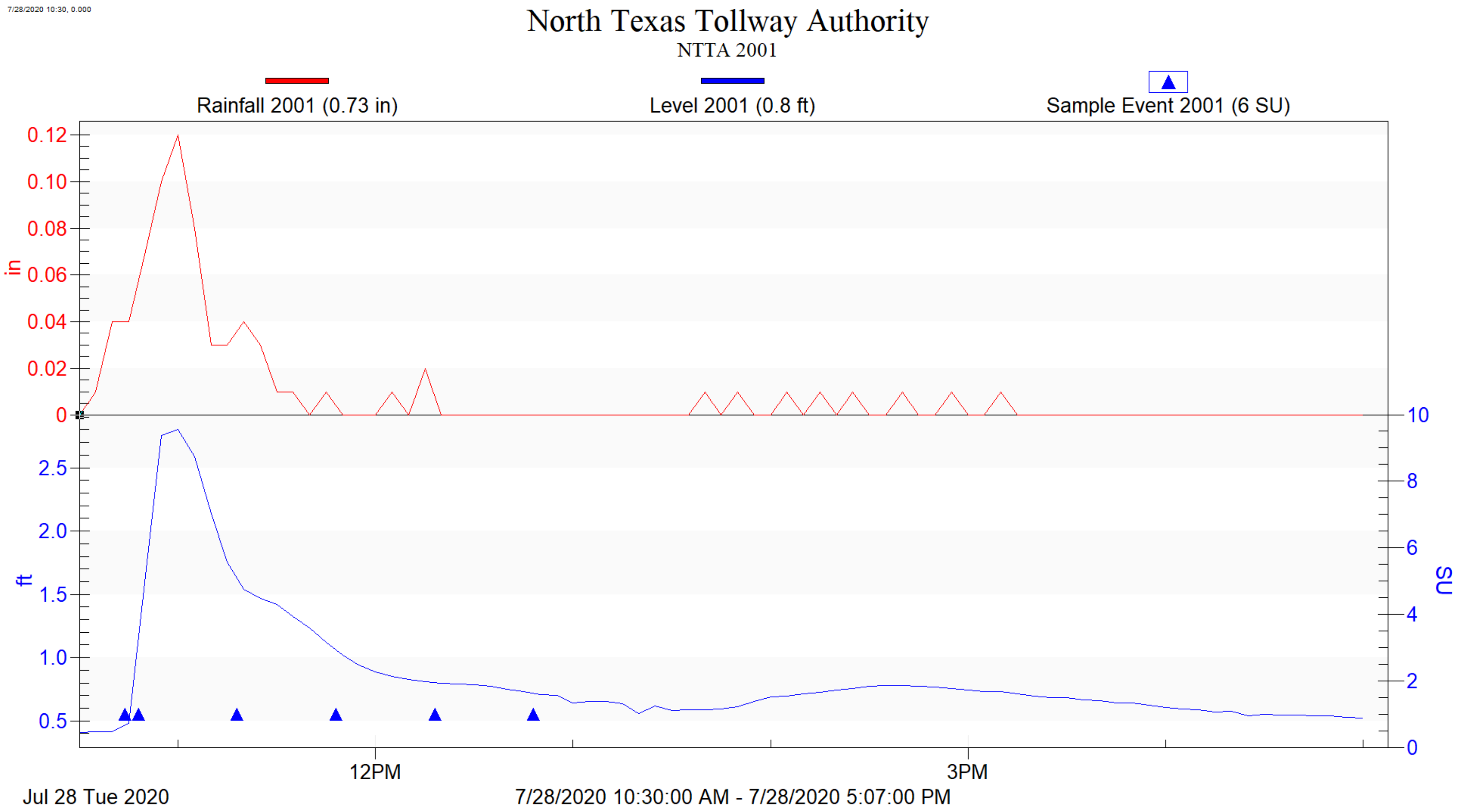
Time first aliquot collected:	1304 7/28/20
Time last aliquot collected:	1508 7/28/20

Peak depth:	1.2 ft	Aliquots collected:	6
Average depth:	1.1 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020


7/28/2020 10:30, 0.000
North Texas Tollway Authority
NTTA 2001
Rainfall 2001 (0.73 in)
Level 2001 (0.8 ft)
Sample Event 2001 (6 SU)
in
0.12
0.10
0.08
0.06
0.04
0.02
0
ft
2.5
2.0
1.5
1.0
0.5
SU
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8
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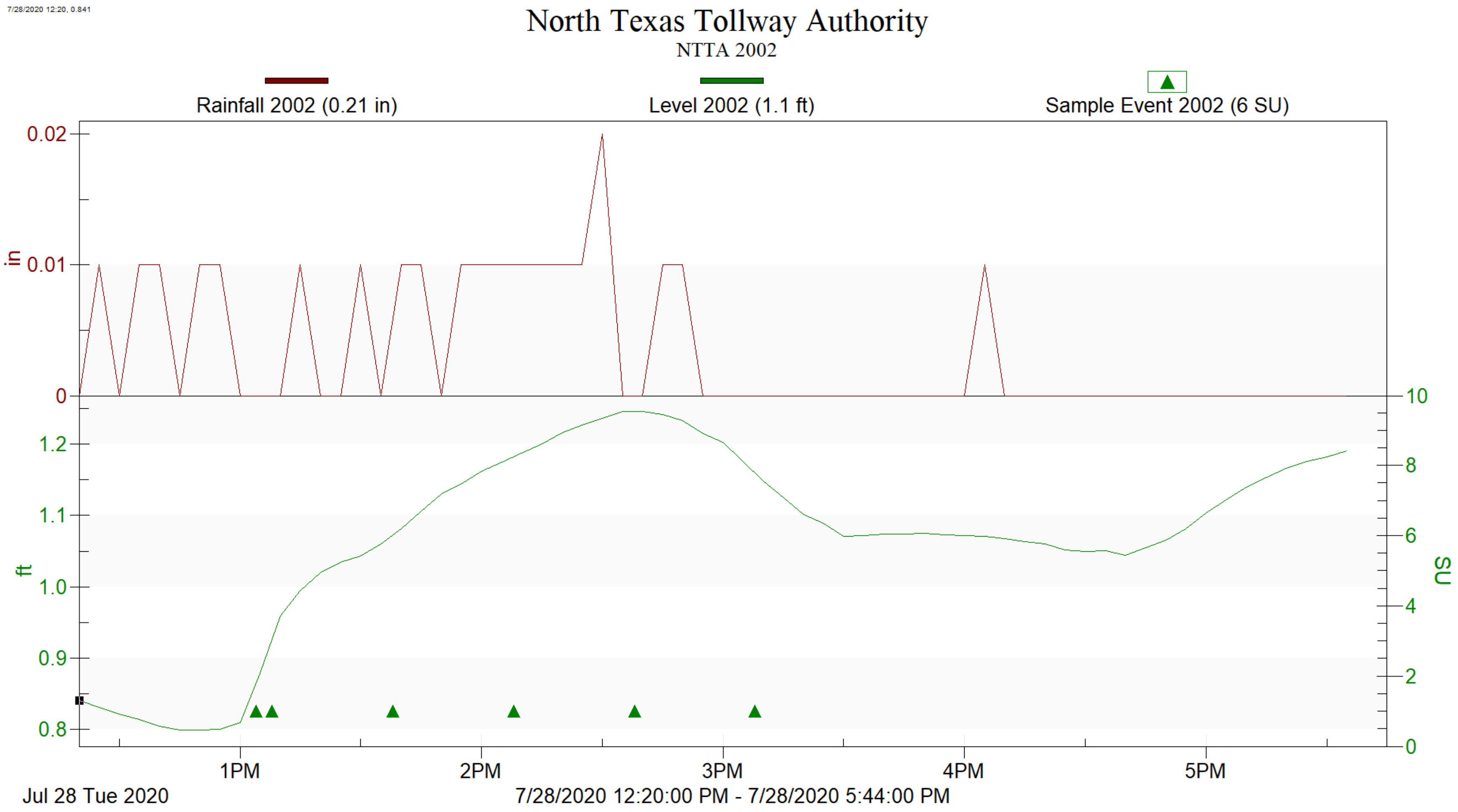
12PM
3PM
Jul 28 Tue 2020
7/28/2020 10:30:00 AM - 7/28/2020 5:07:00 PM


7/28/2020 12:20, 0.841
North Texas Tollway Authority
NTTA 2002
Rainfall 2002 (0.21 in)
Level 2002 (1.1 ft)
Sample Event 2002 (6 SU)
in
0.02
0.01
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ft
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SU
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Jul 28 Tue 2020
7/28/2020 12:20:00 PM - 7/28/2020 5:44:00 PM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100068194

NORTH TEXAS TOLLWAY AUTHORITY 2020

Storm Event: 7/28/2020 Project Number: 100068194	**NT2001**	**NT2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	153	131	mg/L
Total Suspended Solids (TSS)	1570	88.8	mg/L
Biochemical Oxygen Demand (BOD)	16.8 B3, L2	6.5 B3, L2, R6	mg/L
Chemical Oxygen Demand (COD)	31.5 J	11.0 J	mg/L
Total Nitrogen	6.6	1.9	mg/L
Nitrate N	0.86	0.77	mg/L
Ammonia N	0.50	0.12	mg/L
Orthophosphate	0.080 M1	0.041	mg/L
Phosphorus, Dissolved	0.19	0.074	mg/L
Phosphorus, Total	0.85 D3	0.19	mg/L
Atrazine	< 0.100	< 0.100	µg/L
Arsenic, Total	0.0063	0.0025	mg/L
Chromium, Total	0.027	0.0052	mg/L
Copper, Total	0.042	0.0080	mg/L
Lead, Total	0.022	0.0023	mg/L
Zinc, Total	0.30	0.053	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	3.2 J	2.4 J	mg/L
pH	8.9	8.3	su
Ambient Air Temperature (field)	79	79	°F
Water Temperature (field)	80.8	80.5	°F
E. Coli	> 24196.0	1956.0	MPN/100 mL
Specific Conductivity	286	233	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
L2 - Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low
D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference
R6 - The RPD between valid sample dilutions exceeded 30%

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF PLANO

Sample Collection Report
Event Date: August 16, 2020

Storm Summary

Storm description: Heavy rain formed in the north and moved south.

Rain event start time and date:	1829 8/16/20	Rainfall total:	1.98 in
Rain event end time and date:	2234 8/16/20	Peak 1-hr rate:	1.59 in/hr

Rainfall station:	KTXPLANO44
Antecedent dry period:	403 hrs

Comments: The storm summary was calculated using data from the KTXPLANO44 weather station located in Alma/Hedgcoxe, Plano (www.wunderground.com/weatherstation).

PL 2001

Station location description: Rowlett Creek at Alma Drive

Flow start time and date:	Unknown 8/16/20
Flow end time and date:	Unknown 8/16/20

Time first aliquot collected:	1847 8/16/20
Time last aliquot collected:	2053 8/16/20

Peak depth:	8.0 ft (est.)	Aliquots collected:	6
Average depth:	Unknown	Total sample volume:	3.5 gal

Comments: Data was lost during download due to a sampler error that froze communication and reset itself to factory default.

PL 2002

Station location description: Rowlett Creek in Oak Point Park

Comments: A successful sample was not collected due to the sampler falsely triggering prior to the event.

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF PLANO 2020

Storm Event: 8/16/2020 Project Number: 100068194	**PL2001**	**PL2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	223	NA	mg/L
Total Suspended Solids (TSS)	1440	NA	mg/L
Biochemical Oxygen Demand (BOD)	11.8 R6	NA	mg/L
Chemical Oxygen Demand (COD)	127	NA	mg/L
Total Nitrogen	4.7	NA	mg/L
Nitrate N	0.64 M1	NA	mg/L
Ammonia N	0.32	NA	mg/L
Orthophosphate	0.048	NA	mg/L
Phosphorus, Dissolved	0.31	NA	mg/L
Phosphorus, Total	0.94	NA	mg/L
Atrazine	0.214	NA	µg/L
Arsenic, Total	0.0086	NA	mg/L
Chromium, Total	0.027	NA	mg/L
Copper, Total	0.029	NA	mg/L
Lead, Total	0.017	NA	mg/L
Zinc, Total	0.12	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	< 0.35	NA	mg/L
pH	7.97	NA	su
Ambient Air Temperature (field)	102	NA	°F
Water Temperature (field)	84.4	NA	°F
E. Coli	2064.0	NA	MPN/100 mL
Specific Conductivity	751	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
R6 - The RPD between valid sample dilutions exceeded 30%
M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100068194
CITY OF PLANO

Sample Collection Report
Event Date: August 30, 2020

Storm Summary

Storm description: Heavy rain formed in the west and moved east.

Rain event start time and date:	0549 8/30/20	Rainfall total:	2.21 in
Rain event end time and date:	0934 8/30/20	Peak 1-hr rate:	1.09 in/hr

Rainfall station:	KTXPLANO203
Antecedent dry period:	319 hrs

Comments: The storm summary was calculated using data from the KTXPLANO203 weather station located in Hills of Spring Creek, Plano (www.wunderground.com/weatherstation).

PL 2001

Station location description: Rowlett Creek at Alma Drive

Comments: A sample was successfully collected on August 16th.

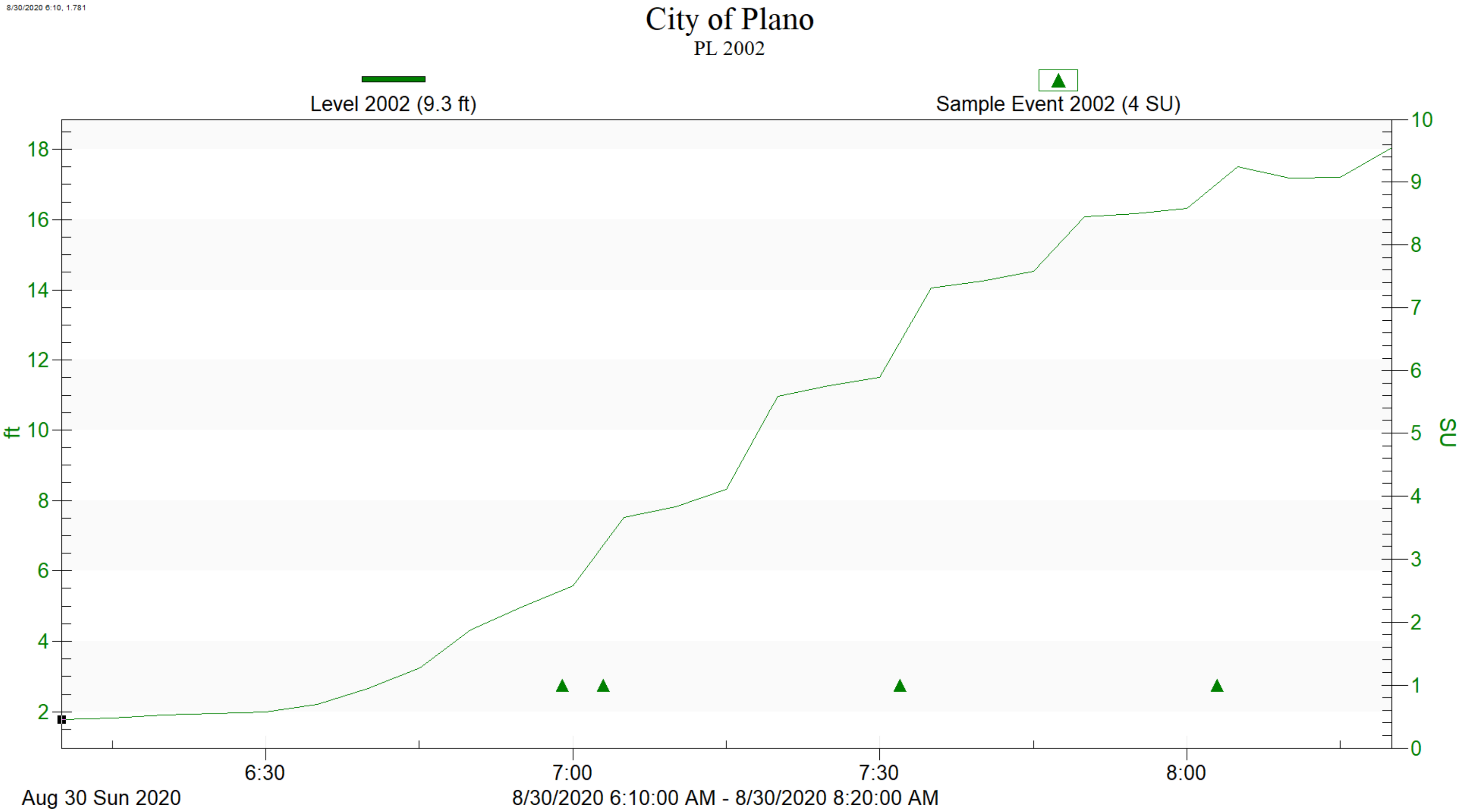
PL 2002

Station location description:	Rowlett Creek in Oak Point Park		
Flow start time and date:	0610 8/30/20		
Flow end time and date:	0820 8/30/20		
Time first aliquot collected:	0659 8/30/20		
Time last aliquot collected:	0902 8/30/20		
Peak depth:	20.0 ft (est.)	Aliquots collected:	6
Average depth:	9.3 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being shut off due to flooding. The last two samples were collected manually at 0832 and 0902.

Prepared By: Adam Gottlieb Date: September 4, 2020

Checked By: Darren Siegmund Date: September 14, 2020


8/30/2020 6:10, 1.781
City of Plano
PL 2002
Level 2002 (9.3 ft)
Sample Event 2002 (4 SU)
ft
18
16
14
12
10
8
6
4
2
SU
10
9
8
7
6
5
4
3
2
1
0
6:30
7:00
7:30
8:00
Aug 30 Sun 2020
8/30/2020 6:10:00 AM - 8/30/2020 8:20:00 AM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100068194

CITY OF PLANO 2020

Storm Event: 8/30/2020 Project Number: 100068194	**PL2001**	**PL2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	140	mg/L
Total Suspended Solids (TSS)	NA	796	mg/L
Biochemical Oxygen Demand (BOD)	NA	6.5 B3	mg/L
Chemical Oxygen Demand (COD)	NA	< 10	mg/L
Total Nitrogen	NA	3.3	mg/L
Nitrate N	NA	0.51	mg/L
Ammonia N	NA	0.15	mg/L
Orthophosphate	NA	0.34	mg/L
Phosphorus, Dissolved	NA	0.045 J	mg/L
Phosphorus, Total	NA	1.2	mg/L
Atrazine	NA	0.189	µg/L
Arsenic, Total	NA	0.0091	mg/L
Chromium, Total	NA	0.029	mg/L
Copper, Total	NA	0.021	mg/L
Lead, Total	NA	0.016	mg/L
Zinc, Total	NA	0.090	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.3 J	mg/L
pH	NA	7.61	su
Ambient Air Temperature (field)	NA	77	°F
Water Temperature (field)	NA	78.6	°F
E. Coli	NA	24196.0 D6	MPN/100 mL
Specific Conductivity	NA	526	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
NST - No Sample Taken
U - Undetected
B3 - The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L
D6 - The precision between the sample and sample duplicate exceeded laboratory control limits

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG Regional Stormwater Monitoring Program
NCTCOG PROJECT ID 100072752
City of Arlington 2020

Sample Collection Report
Event Date: October 23, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

AR 2001

Station location description: Rush Creek @ West Sublett Road

Rain event start time and date: 0751 10/23/20 Rainfall total: 0.48 in
Rain event end time and date: 0935 10/23/20 Peak 1-hr rate: 0.40 in/hour

Rainfall station: Rush Creek @ West Sublett Road (6650)
Antecedent dry period: 744 hours

Comments: Antecedent dry period determined by Rush Creek @ West Sublett Road (6650) from https://gptx.onerain.com/home.php.

Flow start time and date: 0755 10/23/20 Time first aliquot collected: 0803 10/23/20
Flow end time and date: 1115 10/24/20 Time last aliquot collected: 1018 10/23/20

Peak depth: 0.94 ft Aliquots collected: 6
Average depth: 0.169 ft Total sample volume: 3.5 gal

Comments: None

AR 2002

Station location description: Rush Creek @ Woodland Park Blvd.

Rain event start time and date: 0740 10/23/20 Rainfall total: 0.56 in
Rain event end time and date: 1005 10/23/20 Peak 1-hr rate: 0.44 in/hr

Rainfall station: Rush Creek @ Woodland Park Blvd. (6610)
Antecedent dry period: 745 hours

Comments: Antecedent dry period determined by Rush Creek @ Woodland Park Blvd. (6610) from https://gptx.onerain.com/home.php.

Flow start time and date: 0745 10/23/20 Time first aliquot collected: 0757 10/23/20
Flow end time and date: 0300 10/25/20 Time last aliquot collected: 1002 10/23/20

Peak depth: 0.91 ft Aliquots collected: 6
Average depth: 0.309 ft Total sample volume: 3.5 gal

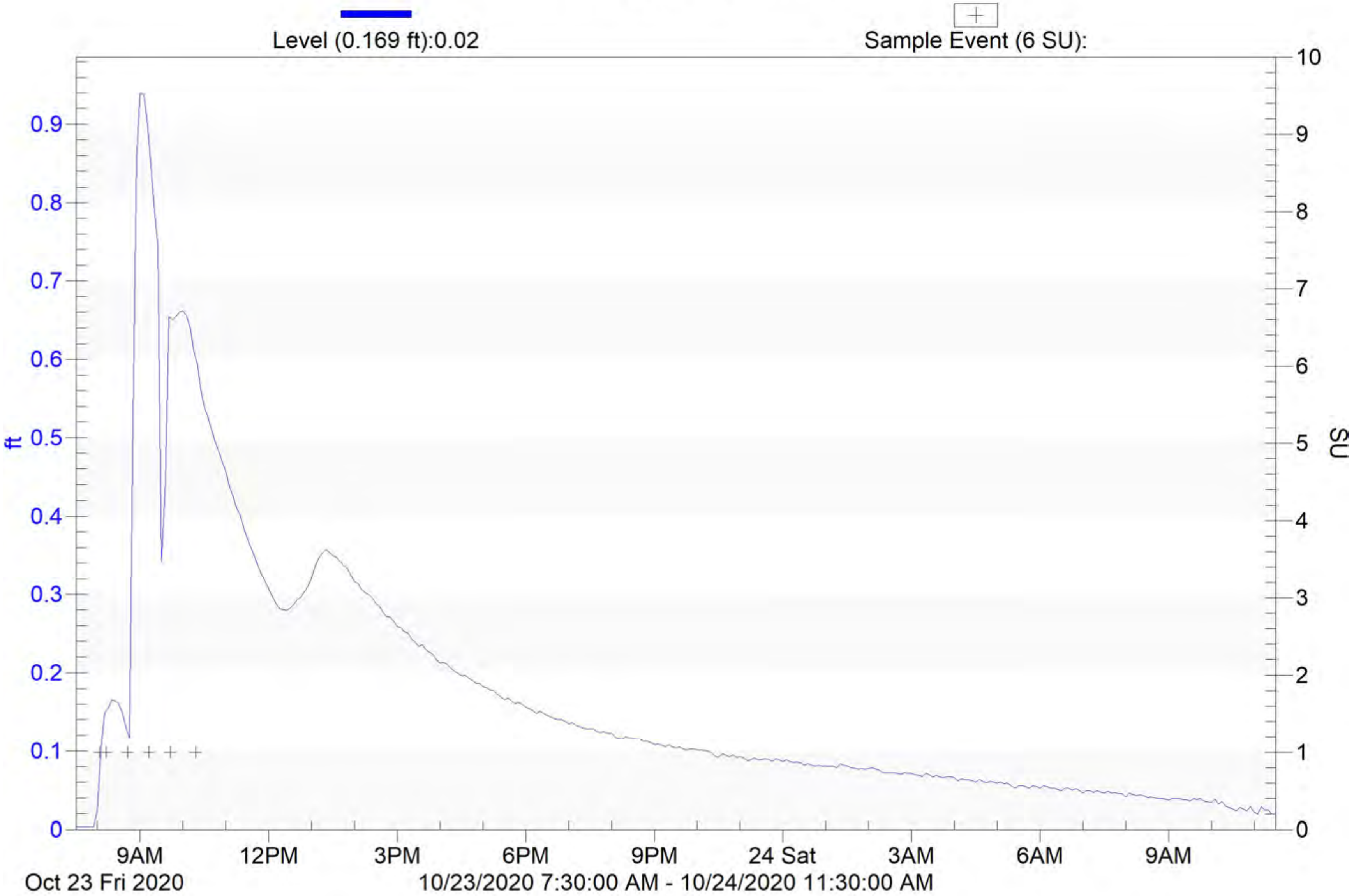
Comments: None

Prepared By: E Kelly Date: January 7, 2021

Checked By: Ryan Deal Date: January 7, 2021

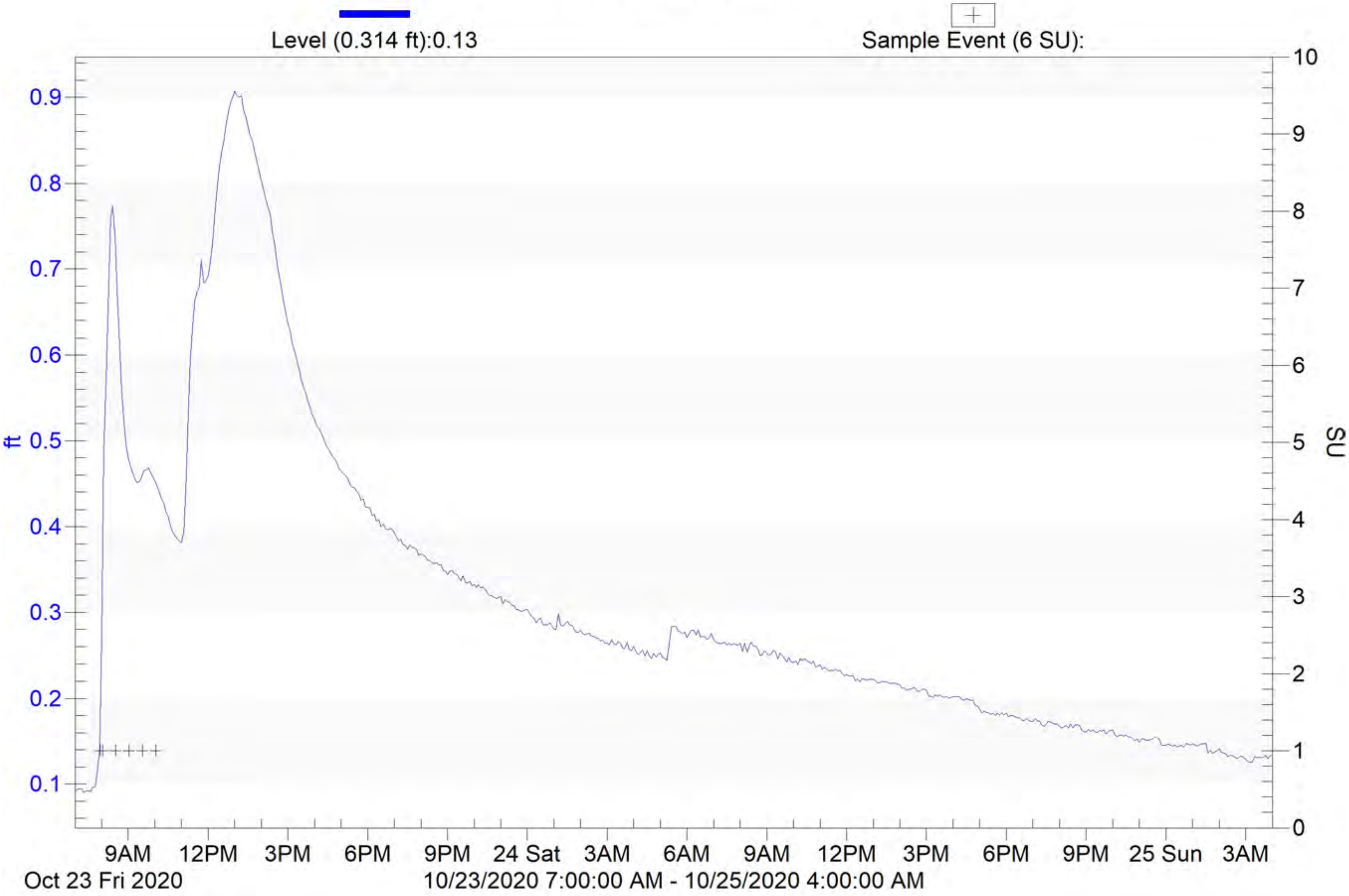
Arlington Rush Creek

AR2001-4



Arlington Rush Creek

AR2002-4



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

CITY OF ARLINGTON 2020

Storm Event: 10/23/2020 Project Number: 100072752	**AR2001**	**AR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	334 R1	271	mg/L
Total Suspended Solids (TSS)	211	72.5	mg/L
Biochemical Oxygen Demand (BOD)	46.2	24	mg/L
Chemical Oxygen Demand (COD)	93	50.3	mg/L
Total Nitrogen	4.9	2.1	mg/L
Nitrate N	0.48	0.55	mg/L
Ammonia N	0.29	0.068 J	mg/L
Orthophosphate	0.11	0.19	mg/L
Phosphorus, Dissolved	0.077	0.15	mg/L
Phosphorus, Total	0.74	0.3	mg/L
Atrazine	0.239	0.425	µg/L
Arsenic, Total	0.0160	0.002	mg/L
Chromium, Total	0.0030 J	0.0025 J	mg/L
Copper, Total	0.0140	0.01	mg/L
Lead, Total	0.0044	0.0024	mg/L
Zinc, Total	0.049	0.059	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.1 J	< 0.35	mg/L
pH	7.9	8.2	su
Ambient Air Temperature (field)	64	64	°F
Water Temperature (field)	65	67	°F
E. Coli	161.0	10.0	MPN/100 mL
Specific Conductivity	930	734	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
R1 - RPD Value was Outside Control Limits

ATKINS
Member of the SNC-Lavalin Group

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100072752
CITY OF GARLAND

Sample Collection Report
Event Date: October 23, 2020

Storm Summary

Storm description: Moderate rain formed in the northwest and moved southeast.

Rain event start time and date:	0420 10/23/20	Rainfall total:	0.43 in
Rain event end time and date:	0520 10/23/20	Peak 1-hr rate:	0.43 in/hr

Rainfall station:	GA 2002
Antecedent dry period:	737 hrs

Comments: None

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Comments: A successful sample was not collected due to the sampler falsely triggering prior to the event.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Flow start time and date:	0440 10/23/20
Flow end time and date:	0750 10/23/20

Time first aliquot collected:	0443 10/23/20
Time last aliquot collected:	0646 10/23/20

Peak depth:	1.0 ft	Aliquots collected:	6
Average depth:	0.4 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date are a result of the start of a separate rain event.

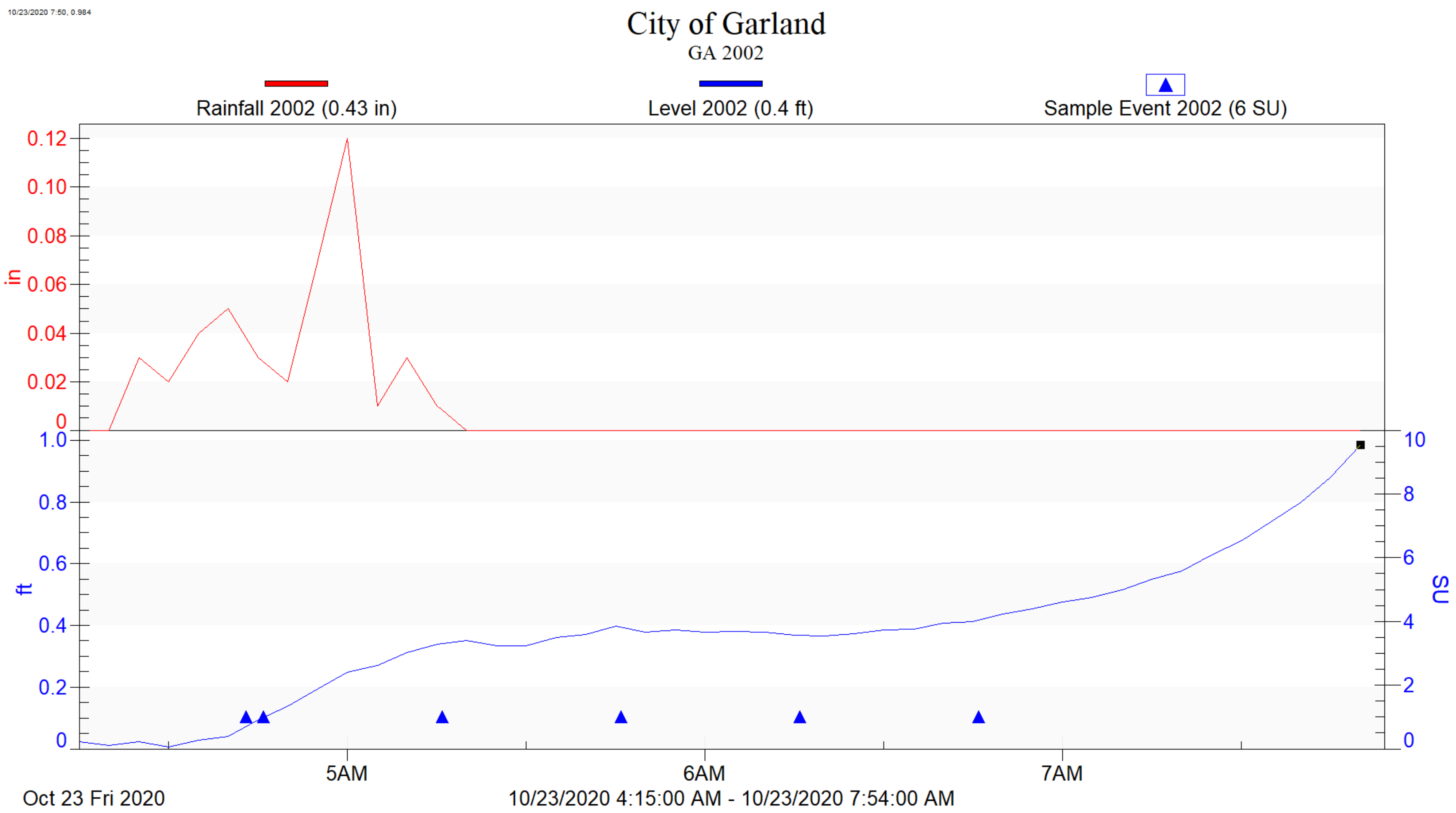
GA 2003

Station location description: Rowlett Creek at Highway 66

Comments: A successful sample was not collected due to the sampler falsely triggering prior to the event.

Prepared By: Adam Gottlieb Date: January 4, 2021

Checked By: Kyle McKee Date: January 6, 2021


10/23/2020 7:50, 0.984
City of Garland
GA 2002
Rainfall 2002 (0.43 in)
Level 2002 (0.4 ft)
Sample Event 2002 (6 SU)
in
0.12
0.10
0.08
0.06
0.04
0.02
0
ft
1.0
0.8
0.6
0.4
0.2
0
SU
10
8
6
4
2
0
5AM
6AM
7AM
Oct 23 Fri 2020
10/23/2020 4:15:00 AM - 10/23/2020 7:54:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

CITY OF GARLAND 2020

Storm Event: 10/23/2020 Project Number: 100072752	**GA2001**	**GA2002**	**GA2003**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	427	NA	mg/L
Total Suspended Solids (TSS)	NA	115	NA	mg/L
Biochemical Oxygen Demand (BOD)	NA	11.7 R6	NA	mg/L
Chemical Oxygen Demand (COD)	NA	24.7 J	NA	mg/L
Total Nitrogen	NA	6.7	NA	mg/L
Nitrate N	NA	5.8	NA	mg/L
Ammonia N	NA	0.057 J	NA	mg/L
Orthophosphate	NA	0.31	NA	mg/L
Phosphorus, Dissolved	NA	0.26	NA	mg/L
Phosphorus, Total	NA	0.34	NA	mg/L
Atrazine	NA	0.085 J	NA	µg/L
Arsenic, Total	NA	0.0018	NA	mg/L
Chromium, Total	NA	0.0012 J	NA	mg/L
Copper, Total	NA	0.0051	NA	mg/L
Lead, Total	NA	0.00092	NA	mg/L
Zinc, Total	NA	0.017	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	2.3 J	NA	mg/L
pH	NA	8.23	NA	su
Ambient Air Temperature (field)	NA	65	NA	°F
Water Temperature (field)	NA	69.6	NA	°F
E. Coli	NA	2382.0	NA	MPN/100 mL
Specific Conductivity	NA	807	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
R6 - The RPD Between Valid Sample Dilutions Exceeded 30%

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100072752
CITY OF GARLAND

Sample Collection Report
Event Date: December 11, 2020

Storm Summary

Storm description: Light rain formed in the southwest and moved northeast.

Rain event start time and date:	1034 12/11/20	Rainfall total:	0.14 in
Rain event end time and date:	1124 12/11/20	Peak 1-hr rate:	0.14 in/hr

Rainfall station:	KTXGARLA94
Antecedent dry period:	294 hrs

Comments: The storm summary was calculated using data from KTXGARLA94 weather station located at Beacon Hill (www.wunderground.com/weatherstation)

GA 2001

Station location description: Rowlett Creek at Ben Davis Bridge

Flow start time and date:	1230 12/11/20		
Flow end time and date:	1535 12/11/20		
Time first aliquot collected:	1312 12/11/20		
Time last aliquot collected:	1515 12/11/20		
Peak depth:	0.9 ft	Aliquots collected:	6
Average depth:	0.7 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, peak depth, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

GA 2002

Station location description: Rowlett Creek at Centerville Road/Castle Drive

Comments: A sample was successfully collected on October 23, 2020.

GA 2003

Station location description: Rowlett Creek at Highway 66

Flow start time and date: 1506 (est.) 12/11/20
Flow end time and date: Unknown 12/11/20

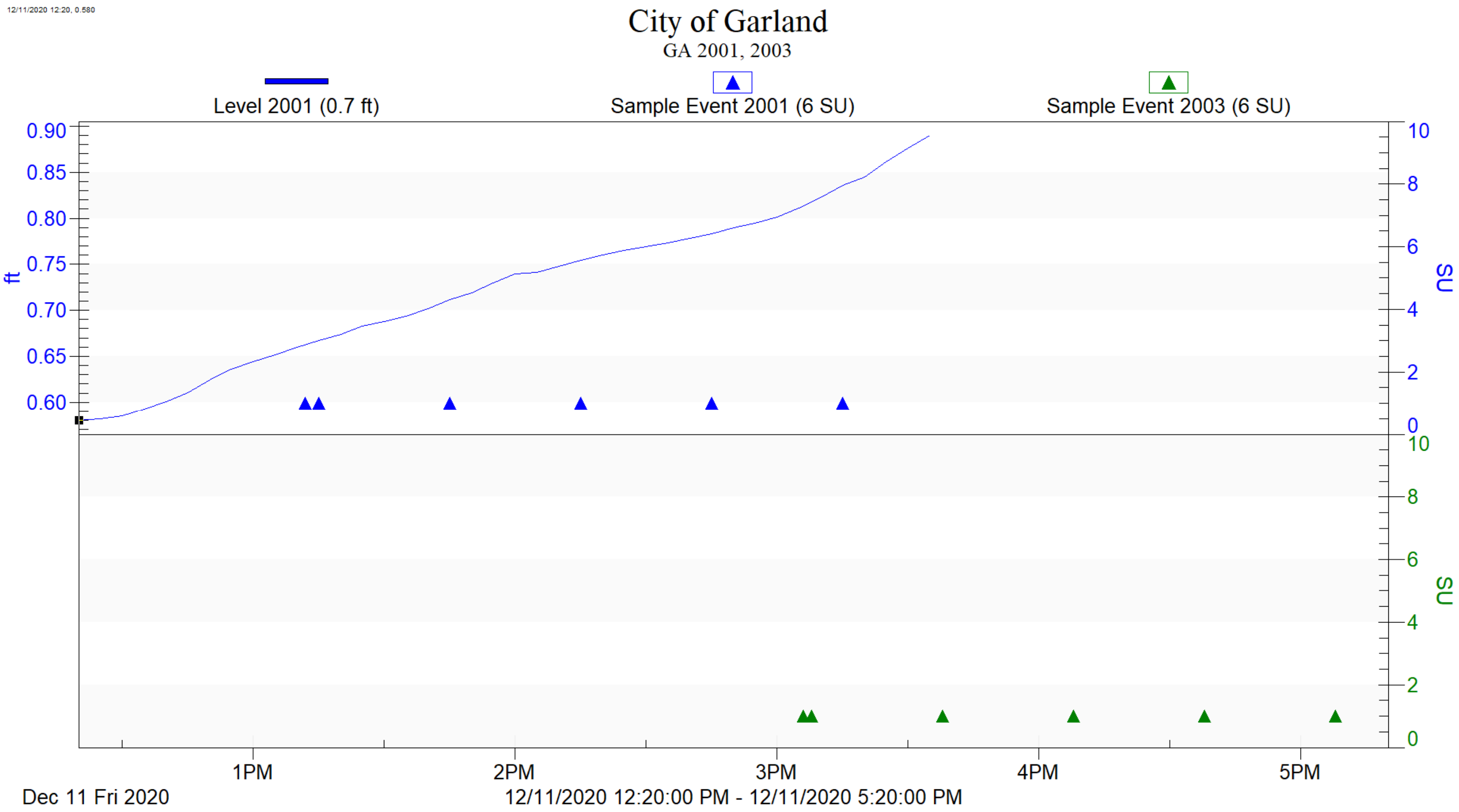
Time first aliquot collected: 1506 12/11/20
Time last aliquot collected: 1708 12/11/20

Peak depth:	2.2 (est.)	Aliquots collected:	6
Average depth:	Unknown	Total sample volume:	3.5 gal

Comments: Due to bubbler line and module malfunction, a hydrograph was not retrievable from GA2003. A rise was visually identified, and sample initiation was triggered manually. Samples were collected successfully.

Prepared By: Adam Gottlieb Date: January 4, 2021

Checked By: Kyle McKee Date: January 6, 2021


12/11/2020 12:20, 0.580
City of Garland
GA 2001, 2003
Level 2001 (0.7 ft)
Sample Event 2001 (6 SU)
Sample Event 2003 (6 SU)
ft
0.90
0.85
0.80
0.75
0.70
0.65
0.60
SU
10
8
6
4
2
0
1PM
2PM
3PM
4PM
5PM
Dec 11 Fri 2020
12/11/2020 12:20:00 PM - 12/11/2020 5:20:00 PM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

CITY OF GARLAND 2020

Storm Event: 12/11/2020 Project Number: 100072752	**GA2001**	**GA2002**	**GA2003**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	492	NA	476	mg/L
Total Suspended Solids (TSS)	< 2.8	NA	18.9	mg/L
Biochemical Oxygen Demand (BOD)	< 2.0 H1	NA	3.0 H1	mg/L
Chemical Oxygen Demand (COD)	30.9 J	NA	26.5 J	mg/L
Total Nitrogen	9.3 H1	NA	8.4 H1	mg/L
Nitrate N	7.7 H1	NA	7.2 H1	mg/L
Ammonia N	0.6	NA	0.2	mg/L
Orthophosphate	0.22 H1	NA	0.19 H1	mg/L
Phosphorus, Dissolved	0.22	NA	0.19	mg/L
Phosphorus, Total	0.27	NA	0.26	mg/L
Atrazine	< 0.100	NA	< 0.100	µg/L
Arsenic, Total	0.00097	NA	0.0012	mg/L
Chromium, Total	< 0.00051	NA	0.00097 J	mg/L
Copper, Total	0.003	NA	0.0026	mg/L
Lead, Total	< 0.00014	NA	0.00040 J	mg/L
Zinc, Total	0.0081	NA	0.011	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	0.85 J	NA	0.94 J	mg/L
pH	8.32	NA	8.38	su
Ambient Air Temperature (field)	65	NA	60	°F
Water Temperature (field)	60.5	NA	59.4	°F
E. Coli	< 10.0	NA	146	MPN/100 mL
Specific Conductivity	909	NA	866	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
H1 - Analysis Conducted Outside the EPA Method Holding Time

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100072752
City of Irving 2020

Sample Collection Report
Event Date: October 23, 2020

Storm Summary

Storm description: Heavy rain moving from northwest to southeast.

Rain event start time and date: 0730 10/23/20 Rainfall total: 0.90 in
Rain event end time and date: 0925 10/23/20 Peak 1-hr rate: 0.80 in/hr

Rainfall station: KDFW – DFW International Airport
Antecedent dry period: 755.5 hrs

Comments: Antecedent dry period determined from DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Flow start time and date: 0720 10/23/20 Time first aliquot collected: 0728 10/23/20
Flow end time and date: 2330 10/23/20 Time last aliquot collected: 0933 10/23/20

Peak depth: 2.93 ft Aliquots collected: 6
Average depth: 0.941 ft Total sample volume: 3.5 gal

Comments: None

IR 2002

Station location description: Estelle Branch @ Rochelle Road

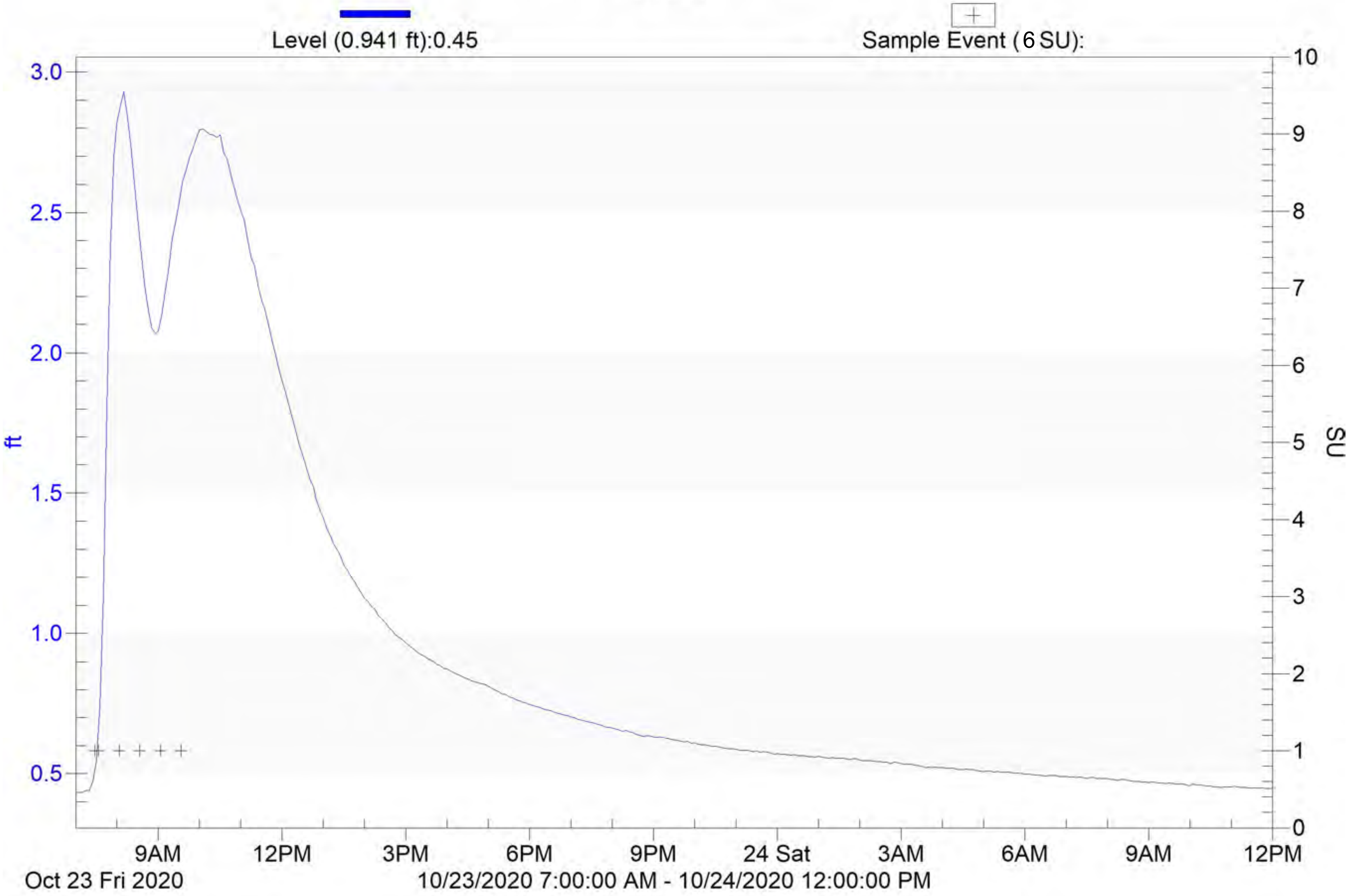
Comments: IR2002 samples collected manually on 10/23/2020. After hydrograph data was retrieved, it was determined that sample collection began after the peak discharge for the storm event. Samples were not analyzed and the IR2002 sampler was redeployed to collect an additional sample during 4Q 2020.

Prepared By: E Kelley Date: January 8, 2021

Checked By: Ryan Deal Date: January 8, 2021

Irving Grapevine Creek

IR2001-4



Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100072752

CITY OF IRVING 2020

Storm Event: 10/23/2020 Project Number: 100072752	**IR2001**	**IR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	292	NA	mg/L
Total Suspended Solids (TSS)	148.0	NA	mg/L
Biochemical Oxygen Demand (BOD)	6.3	NA	mg/L
Chemical Oxygen Demand (COD)	14.0 J	NA	mg/L
Total Nitrogen	1.1	NA	mg/L
Nitrate N	0.41	NA	mg/L
Ammonia N	0.064 J	NA	mg/L
Orthophosphate	0.16	NA	mg/L
Phosphorus, Dissolved	0.065	NA	mg/L
Phosphorus, Total	0.22	NA	mg/L
Atrazine	< 0.105	NA	µg/L
Arsenic, Total	0.0082	NA	mg/L
Chromium, Total	0.0059	NA	mg/L
Copper, Total	0.0120	NA	mg/L
Lead, Total	0.0037	NA	mg/L
Zinc, Total	0.044	NA	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.3 J	NA	mg/L
pH	9.2	NA	su
Ambient Air Temperature (field)	64	NA	°F
Water Temperature (field)	68.5	NA	°F
E. Coli	8164.0	NA	MPN/100 mL
Specific Conductivity	299	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG STORMWATER QUALITY MONITORING PROJECT
NCTCOG PROJECT ID 100072752
City of Irving 2020

Sample Collection Report
Event Date: December 11, 2020

Storm Summary

Storm description: Light rain moving from the southwest to northeast.

Rain event start time and date: 0905 12/11/20 Rainfall total: 0.12 in
Rain event end time and date: 1225 12/11/20 Peak 1-hr rate: 0.08 in/hr

Rainfall station: KDFW – DFW International Airport
Antecedent dry period: 296 hours

Comments: Antecedent dry period determined from DFW International Airport (KDFW) from http://texmesonet.org/HistoricalData/?station=KDFW.

IR 2001

Station location description: Grapevine Creek @ North Royal Lane

Comments: IR2001 sample was collected during the October 23, 2020 rain event.

IR 2002

Station location description: Estelle Branch @ Rochelle Road

Flow start time and date: 1015 12/11/20 Time first aliquot collected: 1042 12/11/20
Flow end time and date: 1250 12/11/20 Time last aliquot collected: 1247 12/11/20

Peak depth: 0.092 ft Aliquots collected: 6
Average depth: 0.043 ft Total sample volume: 3.5 gal

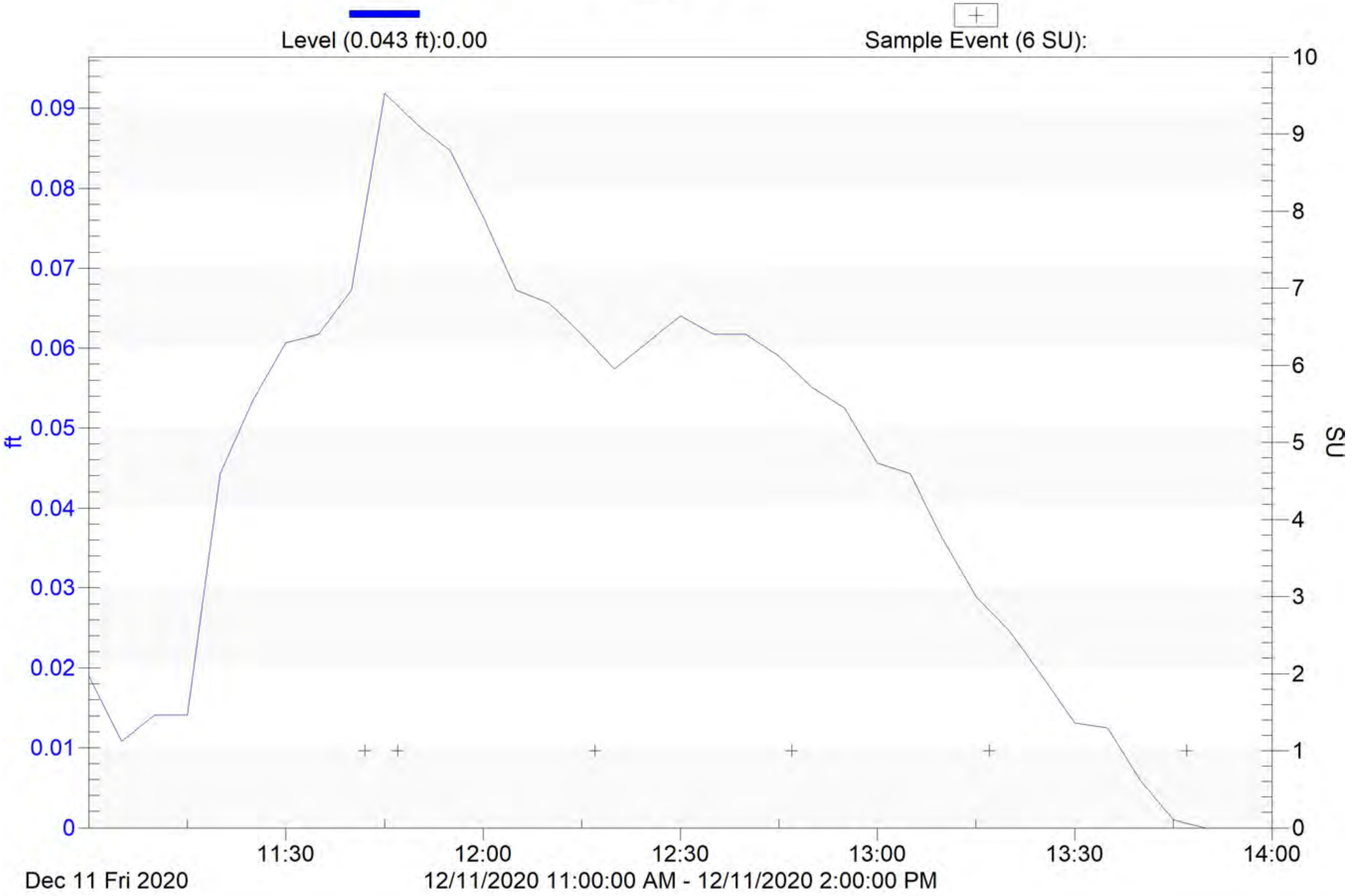
Comments: IR2002 sampler time was set for CDT when it should have been set for CST. Therefore, the IR2002 hydrograph is offset by 1 hour. For example, 11 am is equal to 10 am.

Prepared By: Ryan Deal Date: January 8, 2021

Checked By: Date: 01/12/2021

Irving Estelle Creek

IR2002-4



Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

CITY OF IRVING 2020

Storm Event: 12/11/2020 Project Number: 100072752	**IR2001**	**IR2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	NA	251	mg/L
Total Suspended Solids (TSS)	NA	23.8	mg/L
Biochemical Oxygen Demand (BOD)	NA	7.8	mg/L
Chemical Oxygen Demand (COD)	NA	33.1 J	mg/L
Total Nitrogen	NA	1.7	mg/L
Nitrate N	NA	1.2	mg/L
Ammonia N	NA	0.063 J	mg/L
Orthophosphate	NA	0.089	mg/L
Phosphorus, Dissolved	NA	0.11	mg/L
Phosphorus, Total	NA	0.16	mg/L
Atrazine	NA	< 0.105	µg/L
Arsenic, Total	NA	0.0017	mg/L
Chromium, Total	NA	0.019	mg/L
Copper, Total	NA	0.0066	mg/L
Lead, Total	NA	0.0011	mg/L
Zinc, Total	NA	0.021	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	NA	1.7 J	mg/L
pH	NA	8.6	su
Ambient Air Temperature (field)	NA	64	°F
Water Temperature (field)	NA	60.4	°F
E. Coli	NA	323.0	MPN/100 mL
Specific Conductivity	NA	490	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100072752
CITY OF MESQUITE

Sample Collection Report
Event Date: December 11, 2020

Storm Summary

Storm description: Light rain formed in the southwest and moved northeast.

Rain event start time and date:	0930 12/11/20	Rainfall total:	0.14 in
Rain event end time and date:	1130 12/11/20	Peak 1-hr rate:	0.10 in/hr

Rainfall station:	MS 2002
Antecedent dry period:	296 hrs

Comments: None

MS 2001

Station location description:	North of New Market Road
Flow start time and date:	1210 12/11/20
Flow end time and date:	1425 12/11/20
Time first aliquot collected:	1219 12/11/20
Time last aliquot collected:	1422 12/11/20

Peak depth:	3.1 ft	Aliquots collected:	6
Average depth:	2.5 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

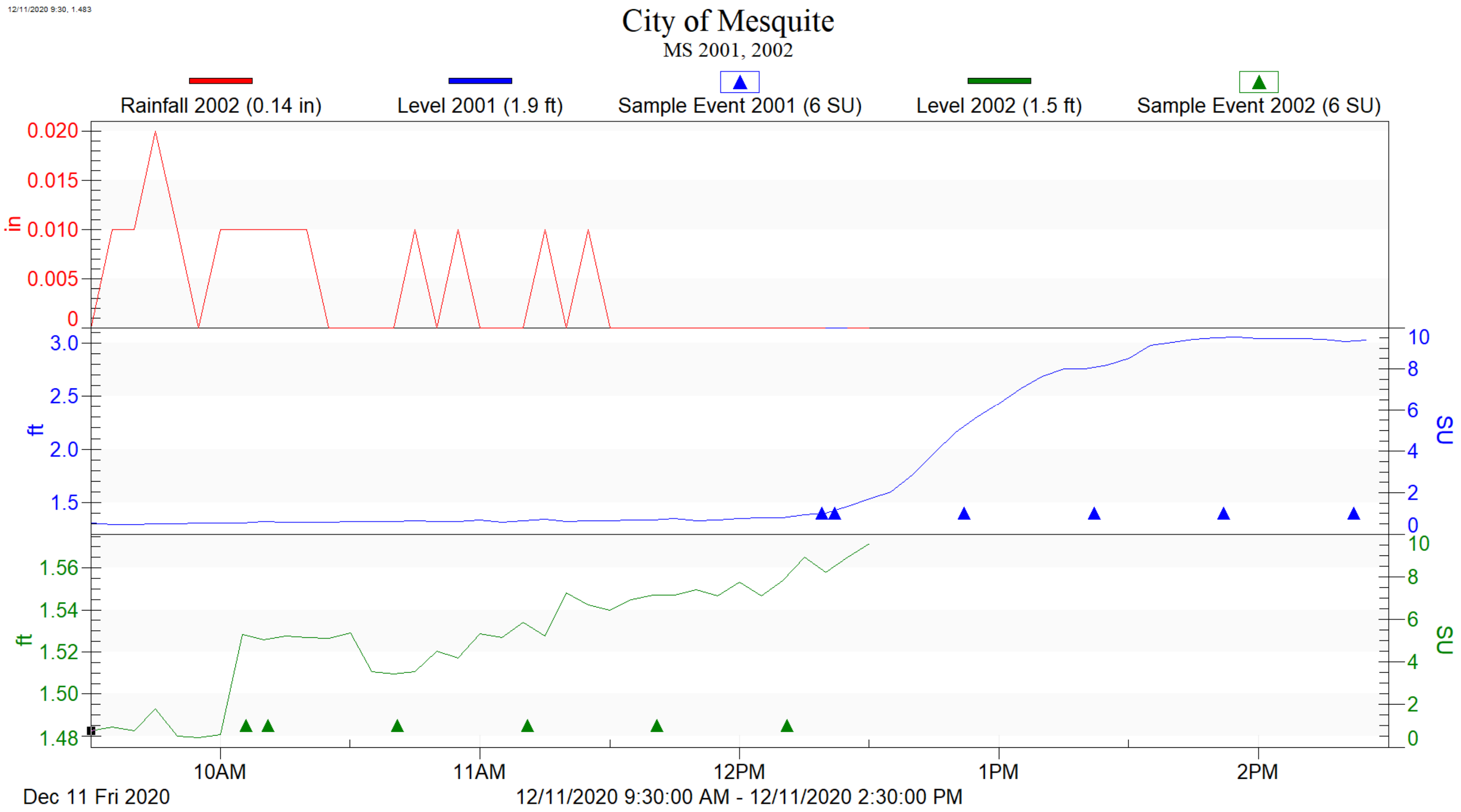
MS 2002

Station location description:	North Mesquite Creek at Edward’s Church		
Flow start time and date:	1000 12/11/20		
Flow end time and date:	1230 12/11/20		
Time first aliquot collected:	1006 12/11/20		
Time last aliquot collected:	1211 12/11/20		
Peak depth:	1.6 ft	Aliquots collected:	6
Average depth:	1.5 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, peak depth, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: January 4, 2021

Checked By: Kyle McKee Date: January 6, 2021


12/11/2020 9:30, 1.483
City of Mesquite
MS 2001, 2002
Rainfall 2002 (0.14 in)
Level 2001 (1.9 ft)
Sample Event 2001 (6 SU)
Level 2002 (1.5 ft)
Sample Event 2002 (6 SU)
in
0.020
0.015
0.010
0.005
0
ft
3.0
2.5
2.0
1.5
SU
10
8
6
4
2
0
ft
1.56
1.54
1.52
1.50
1.48
SU
10
8
6
4
2
0
10AM
11AM
12PM
1PM
2PM
Dec 11 Fri 2020
12/11/2020 9:30:00 AM - 12/11/2020 2:30:00 PM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

CITY OF MESQUITE 2020

Storm Event: 12/11/2020 Project Number: 100072752	**MS2001**	**MS2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	317	342	mg/L
Total Suspended Solids (TSS)	38.5	4.4	mg/L
Biochemical Oxygen Demand (BOD)	3.9 H1	3.6 H1	mg/L
Chemical Oxygen Demand (COD)	30.9 J	35.3	mg/L
Total Nitrogen	0.15 H1	0.22 H1	mg/L
Nitrate N	0.15 H1	0.22 H1	mg/L
Ammonia N	< 0.028	< 0.028	mg/L
Orthophosphate	0.020 J, H1	0.020 J, H1	mg/L
Phosphorus, Dissolved	0.029 J	0.046 J	mg/L
Phosphorus, Total	0.077	0.042 J	mg/L
Atrazine	< 0.100	< 0.100	µg/L
Arsenic, Total	0.0013	0.0017	mg/L
Chromium, Total	0.0022 J	0.00062 J	mg/L
Copper, Total	0.0048	0.003	mg/L
Lead, Total	0.0009	0.00022 J	mg/L
Zinc, Total	0.015	0.0053	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	1.1 J	6.3	mg/L
pH	8.4	7.9	su
Ambient Air Temperature (field)	64	64	°F
Water Temperature (field)	54.2	55.2	°F
E. Coli	< 10.0	< 10.0	MPN/100 mL
Specific Conductivity	459	609	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
H1 - Analysis Conducted Outside the EPA Method Holding Time

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100072752
NORTH TEXAS TOLLWAY AUTHORITY

Sample Collection Report
Event Date: October 23, 2020

Storm Summary

Storm description: Moderate rain formed in the northwest and moved southeast.

Rain event start time and date:	0720 10/23/20	Rainfall total:	0.95 in
Rain event end time and date:	0945 10/23/20	Peak 1-hr rate:	0.81 in/hr

Rainfall station:	NTTA 2001
Antecedent dry period:	741 hrs

Comments: The antecedent dry period was calculated using data from NTTA 2001 and the DTX 7035 weather station located on Elm Fork at California Crossing (http://www.ci.dallas.tx.us/sts/html/fc.html).

NTTA 2001

Station location description:	Unnamed Tributary at SH 161 N. of Gateway Dr.
Flow start time and date:	0730 10/23/20
Flow end time and date:	0945 10/23/20
Time first aliquot collected:	0732 10/23/20
Time last aliquot collected:	0935 10/23/20

Peak depth:	3.0 ft	Aliquots collected:	6
Average depth:	1.4 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Storm Summary

Storm description: Moderate rain moved from northwest to southeast.

Rain event start time and date:	0745 10/23/20	Rainfall total:	0.40 in
Rain event end time and date:	0945 10/23/20	Peak 1-hr rate:	0.38 in/hr

Rainfall station: ATK1
Antecedent dry period: 736 hrs

Comments: The antecedent dry period was calculated using data from an Atkins rainfall station (ATK1) and the GPTX 26080 weather station located at N Cottonwood and Great Southwest Parkway (https://gptx.onerain.com/home.php).

NTTA 2002

Station location description: Cottonwood Creek at SH 161 S. of Dickey Road

Flow start time and date: 0800 10/23/20
Flow end time and date: 1035 10/23/20

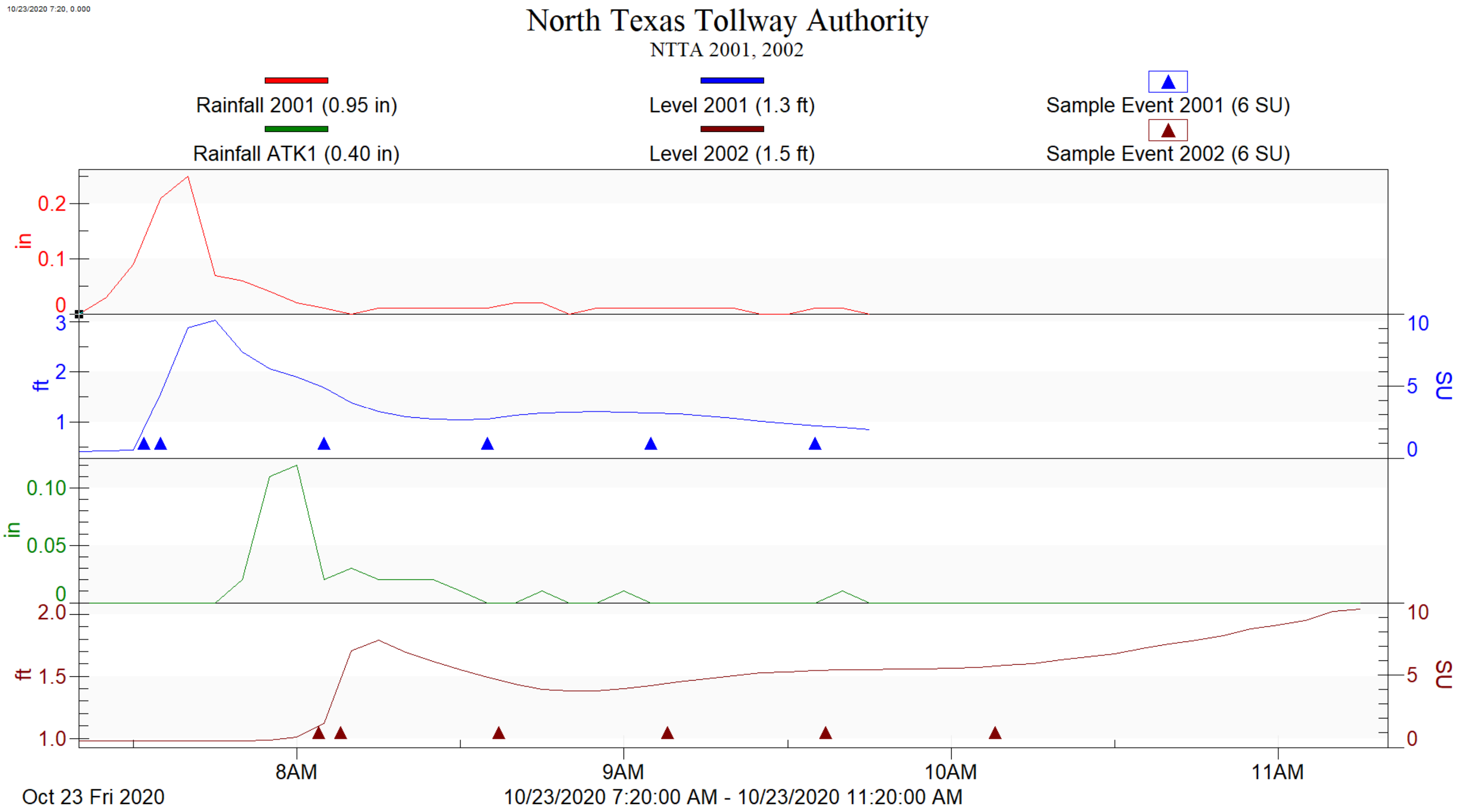
Time first aliquot collected: 0804 10/23/20
Time last aliquot collected: 1008 10/23/20

Peak depth:	1.8 ft	Aliquots collected:	6
Average depth:	1.5 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, peak depth, and average depth are a result of the sampling equipment being removed at the conclusion of the sampling activities.

Prepared By: Adam Gottlieb Date: January 4, 2021

Checked By: Kyle McKee Date: January 6, 2021


10/23/2020 7:20, 0.000
North Texas Tollway Authority
NTTA 2001, 2002
Rainfall 2001 (0.95 in)
Level 2001 (1.3 ft)
Sample Event 2001 (6 SU)
Rainfall ATK1 (0.40 in)
Level 2002 (1.5 ft)
Sample Event 2002 (6 SU)
in
0.2
0.1
0
ft
3
2
1
10
5
0
SU
in
0.10
0.05
0
ft
2.0
1.5
1.0
10
5
0
SU
8AM
9AM
10AM
11AM
Oct 23 Fri 2020
10/23/2020 7:20:00 AM - 10/23/2020 11:20:00 AM

Analytical Results Summary

NCTCOG Regional Stormwater Monitoring Program

NCTCOG Project 100072752

NORTH TEXAS TOLLWAY AUTHORITY 2020

Storm Event: 10/23/2020 Project Number: 100072752	**NT2001**	**NT2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	77	160	mg/L
Total Suspended Solids (TSS)	55.2	58.8	mg/L
Biochemical Oxygen Demand (BOD)	8.5	9.5	mg/L
Chemical Oxygen Demand (COD)	39.6	37.5	mg/L
Total Nitrogen	1.7	1.7	mg/L
Nitrate N	0.46	0.65	mg/L
Ammonia N	0.078 J	0.12	mg/L
Orthophosphate	0.13	0.12	mg/L
Phosphorus, Dissolved	0.12	0.078	mg/L
Phosphorus, Total	0.18	0.14	mg/L
Atrazine	< 0.100	< 0.100	µg/L
Arsenic, Total	0.0028 B	0.0024 B	mg/L
Chromium, Total	0.0036	0.0039	mg/L
Copper, Total	0.0091	0.0090	mg/L
Lead, Total	0.0026	0.0022	mg/L
Zinc, Total	0.065	0.051	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	4.2 J	0.50 J	mg/L
pH	7.91	8.93	su
Ambient Air Temperature (field)	69	69	°F
Water Temperature (field)	67.6	69.1	°F
E. Coli	> 24196.0	2359.0	MPN/100 mL
Specific Conductivity	355	176.3	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
B - Analyte was Detected in the Associated Method Blank

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NCTCOG REGIONAL STORMWATER MONITORING PROGRAM
PROJECT ID 100072752
CITY OF PLANO

Sample Collection Report
Event Date: October 23, 2020

Storm Summary

Storm description: Moderate rain formed in the northwest and moved southeast.

Rain event start time and date:	0339 10/23/20	Rainfall total:	0.80 in
Rain event end time and date:	0454 10/23/20	Peak 1-hr rate:	0.76 in/hr

Rainfall station:	KTXPLANO44
Antecedent dry period:	736 hrs

Comments: The storm summary was calculated using data from the KTXPLANO44 weather station located in Alma/Hedgcoxe, Plano (www.wunderground.com/weatherstation).

PL 2001

Station location description: Rowlett Creek at Alma Drive

Flow start time and date:	0422 (est.) 10/23/20
Flow end time and date:	Unknown 10/23/20

Time first aliquot collected:	0422 10/23/20
Time last aliquot collected:	0638 10/23/20

Peak depth:	2.5 ft (est.)	Aliquots collected:	6
Average depth:	Unknown	Total sample volume:	3.5 gal

Comments: Data was lost during download due to a sampler error that froze communication and reset itself to factory default.

PL 2002

Station location description: Rowlett Creek in Oak Point Park

Flow start time and date: 0510 10/23/20
Flow end time and date: 0730 10/23/20

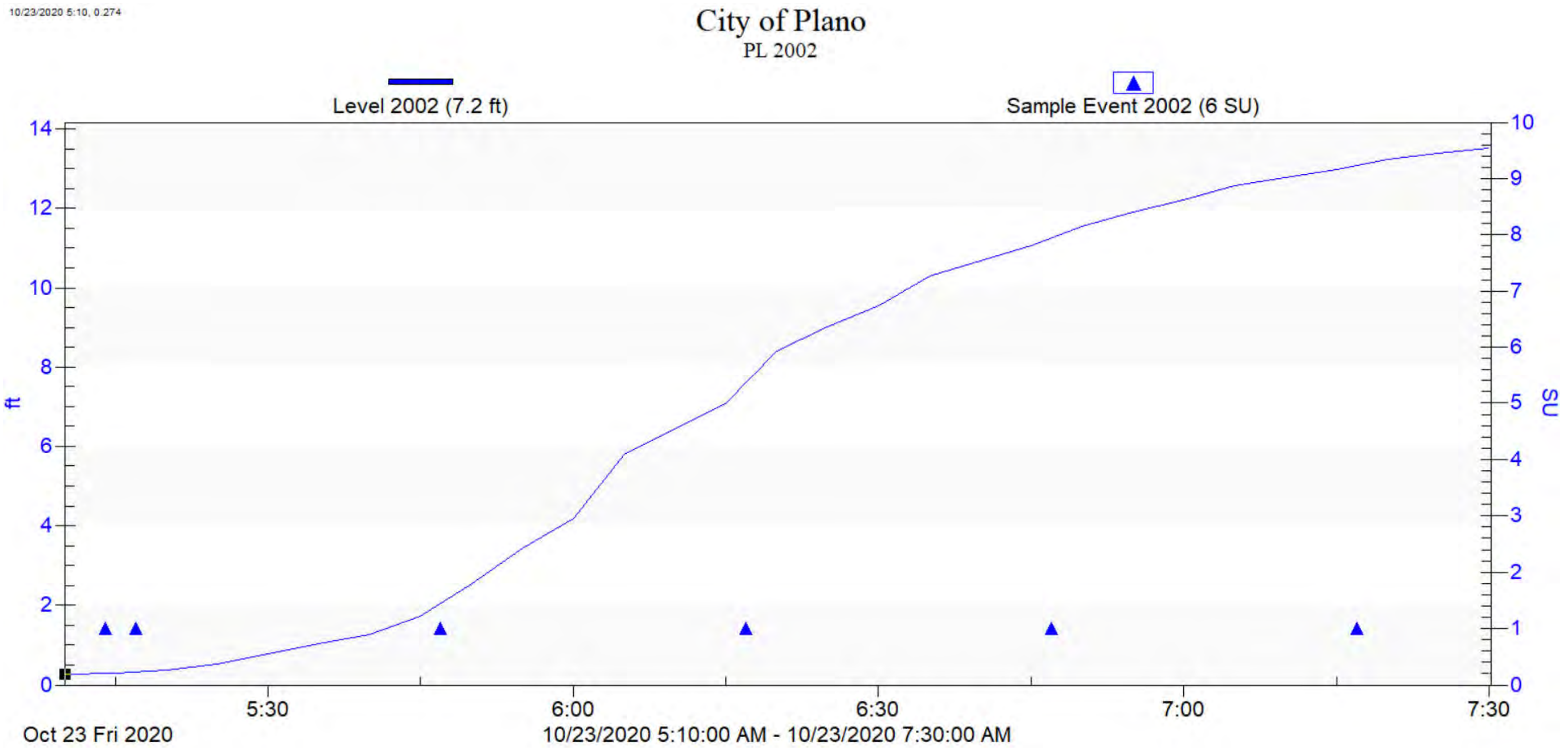
Time first aliquot collected: 0514 10/23/20
Time last aliquot collected: 0717 10/23/20

Peak depth:	13.5 ft	Aliquots collected:	6
Average depth:	7.2 ft	Total sample volume:	3.5 gal

Comments: Flow end time and date, peak depth, and average depth are a result of the sampling equipment being removed at the conclusion of sampling activities.

Prepared By: Adam Gottlieb Date: January 4, 2021

Checked By: Kyle McKee Date: January 6, 2021


10/23/2020 5:10, 0.274
City of Plano
PL 2002
Level 2002 (7.2 ft)
Sample Event 2002 (6 SU)
14
12
10
8
6
4
2
0
ft
10
9
8
7
6
5
4
3
2
1
0
SU
5:30
6:00
6:30
7:00
7:30
Oct 23 Fri 2020
10/23/2020 5:10:00 AM - 10/23/2020 7:30:00 AM

Analytical Results Summary
NCTCOG Regional Stormwater Monitoring Program
NCTCOG Project 100072752
CITY OF PLANO 2020

Storm Event: 10/23/2020 Project Number: 100072752	**PL2001**	**PL2002**	
PARAMETER NAME	**COMPOSITE**	**COMPOSITE**	**UNIT**
Total Dissolved Solids (TDS)	181	255	mg/L
Total Suspended Solids (TSS)	693	1120	mg/L
Biochemical Oxygen Demand (BOD)	24.9 R6	11.8	mg/L
Chemical Oxygen Demand (COD)	26.8 J	24.7 J	mg/L
Total Nitrogen	2.9	3.8	mg/L
Nitrate N	0.66	0.7	mg/L
Ammonia N	0.13	0.089 J	mg/L
Orthophosphate	0.32	0.28	mg/L
Phosphorus, Dissolved	0.073	0.053	mg/L
Phosphorus, Total	0.69	1.7	mg/L
Atrazine	0.142	0.095 J	µg/L
Arsenic, Total	0.0073	0.0095	mg/L
Chromium, Total	0.019	0.023	mg/L
Copper, Total	0.021	0.025	mg/L
Lead, Total	0.011	0.019	mg/L
Zinc, Total	0.088	0.110	mg/L
PARAMETER NAME	**GRAB**	**GRAB**	**UNIT**
Oil & Grease(HEM)	2.0 J	< 0.35	mg/L
pH	8.15	8.34	su
Ambient Air Temperature (field)	66	66	°F
Water Temperature (field)	69.5	68.3	°F
E. Coli	7270.0	1354.0	MPN/100 mL
Specific Conductivity	719	NA	µS/cm

">" - Not Identified Above the Upper Detection Limit
"<" - Not Identified Below the Lower Detection Limit
J - Positively Identified Below the Lower Detection Limit
R6 - The RPD Between Valid Sample Dilutions Exceeded 30%

Appendix H:

Dallas Bioassessment Report

Table B-3c Rapid Bioassessment Protocol – Habitat Assessment Data 1

HUC Watershed	Sample ID	Collection Date	Habitat Score	Average Stream Depth (meters)	Average Stream Width (meters)	Channel Alteration	Channel Sinuosity	Embeddedness
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	154	0.18	8.53	16	11	10
		7/20/2020	159	0.26	10.67	13	14	13
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	166	0.24	4.57	14	14	8
		7/15/2020	142	0.25	3.96	11	11	10
Headwaters Five Mile Creek	FIV-D	4/16/2020	162	0.18	4.88	14	11	13
		7/15/2020	124	0.274	4.88	11	14	11
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	135	0.46	3.66	10	12	9
		7/20/2020	145	0.30	3.35	15	11	11

Table B-3c (continued) Rapid Bioassessment Protocol – Habitat Assessment Data 1

HUC Watershed	Sample ID	Collection Date	Epifaunal Substrate / Available Cover	Frequency of Riffles	Left Bank Stability	Left Bank Vegetative Protection	Pool Substrate Characterization	Pool Variability	Channel Flow Status
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	12	8	8	7	12	11	11
		7/20/2020	11	13	6	7	11	10	12
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	15	15	9	6	16	10	14
		7/15/2020	12	14	5	6	12	7	11
Headwaters Five Mile Creek	FIV-D	4/16/2020	12	13	7	8	12	13	11
		7/15/2020	6	11	4	3	10	10	9
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	8	7	7	8	11	9	9
		7/20/2020	11	8	5	6	13	13	10

Table B-3c (continued) Rapid Bioassessment Protocol – Habitat Assessment Data 1

HUC Watershed	Sample ID	Collection Date	Right Bank Stability	Right Bank Vegetative Protection	Riparian Vegetative Zone Width-Left	Riparian Vegetative Zone Width-Right	Sediment Deposition	Velocity / Depth Regime
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	8	7	7	7	8	11
		7/20/2020	6	6	6	6	14	11
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	6	8	6	6	13	8
		7/15/2020	5	2	6	6	11	10
Headwaters Five Mile Creek	FIV-D	4/16/2020	6	6	5	5	13	13
		7/15/2020	4	3	5	5	8	10
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	7	8	7	7	7	9
		7/20/2020	6	6	5	5	9	11

Table B-4 Aquatic Life Use Rating Data

HUC Watershed	Sample ID	Spring 2020		Summer 2020	
Bachman Branch - Elm Fork Trinity River	BAB-B	24	Intermediate	21	Limited
Floyd Branch - White Rock Creek	FLO-A	20	Limited	25	Intermediate
Headwaters Five Mile Creek	FIV-D	23	Intermediate	18	Limited
White Rock Creek-White Rock Lake	DIX-A	23	Intermediate	28	Intermediate

Table B-5a Water Quality Data 1

HUC Watershed	Sample ID	Collection Date	Temperature (°C)	pH	Turbidity (NTU)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Ammonia (as N) (mg/L)	Nitrate + Nitrite (as N) (mg/L)	Total Phosphorus (as P) (mg/L)	Chemical Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	20.6	7.58	8	824	6.99	<0.10	0.28	<0.050	<35.0	5
		7/20/2020	29.5	7.84	4	756	6.57	<0.10	0.44	<0.050	<35.0	0
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	14.5	8.09	13	797	9.53	<0.10	8.2	1.2	<35.0	6
		7/15/2020	26.0	8.14	8	*	7.0	<0.10	9.5	2.0	<35.0	6
Headwaters Five Mile Creek	FIV-D	4/16/2020	14.9	8.07	4	620	9.86	<0.10	1.3	<0.050	<35.0	7
		7/15/2020	27.5	7.91	5	*	6.8	<0.10	0.88	<0.050	<35.0	2
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	21.0	7.20	9	674	6.56	<0.10	0.76	<0.050	<35.0	11
		7/20/2020	29.3	7.60	7	527	5.66	<0.10	0.32	<0.050	<35.0	4

*Conductivity probe was not working.

Table B-5b Water Quality Data 2

HUC Watershed	Sample ID	Collection Date	*E. coli*	Total Coliform	Surfactants (mg/L)	Copper (mg/L)	Iron (mg/L)	Hardness (mg/L)	Flow
			(MPN / 100ml)	(MPN / 100ml)					(cu ft / sec)
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	60.9	>2419.6	<0.50	<0.020	<0.50	289	1.300
		7/20/2020	118.7	>2419.6	<0.50	<0.020	<0.50	261	0.700
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	648.8	>2419.6	<0.50	<0.020	<0.50	300	1.540
		7/15/2020	461.1	>2419.6	<0.50	<0.020	<0.50	242	1.740
Headwaters Five Mile Creek	FIV-D	4/16/2020	122.3	>2419.6	<0.50	<0.020	<0.50	298	0.950
		7/15/2020	178.5	>2419.6	<0.50	<0.020	<0.50	234	1.220
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	547.5	>2419.6	<0.50	<0.020	<0.50	315	0.620
		7/20/2020	218.7	>2419.6	<0.50	<0.020	<0.50	226	0.520

Table B-5c Water Quality Data (Pesticides 1)

HUC Watershed	Sample ID	Collection Date	4,4'-DDD (µg/L)	4,4'-DDE (µg/L)	4,4'-DDT (µg/L)	Aldrin (µg/L)	Alpha BHC (µg/L)	Atrazine (µg/L)	Beta BHC (µg/L)
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	<0.048	<0.048	<0.0095	<0.0048	<0.024	0.36	<0.024
		7/20/2020	<0.099	<0.099	<0.020	<0.0099	<0.050	<0.1	<0.050
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	<0.096	<0.096	<0.019	<0.0096	<0.048	0.16	<0.048
		7/5/2020	<0.097	<0.097	<0.019	<0.0097	<0.049	<0.1	<0.049
Headwaters Five Mile Creek	FIV-D	4/16/2020	<0.096	<0.096	<0.019	<0.0096	<0.048	<0.095	<0.048
		7/15/2020	<0.098	<0.098	<0.020	<0.0098	<0.049	<0.1	<0.049
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	<0.048	<0.048	<0.096	<0.0048	<0.024	0.097	<0.024
		7/20/2020	<0.098	<0.098	<0.020	<0.0098	<0.049	<0.10	<0.049

Table B-5d Water Quality Data (Pesticides 2)

HUC Watershed	Sample ID	Collection Date	Chlordane (µg/L)	Delta BHC (µg/L)	Dieldrin (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan sulfate (µg/L)	Endrin (µg/L)
Bachman Branch - Elm Fork Trinity River	BAB-B	4/27/2020	<0.095	<0.024	<0.0095	<0.0048	<0.0095	<0.048	<0.0095
		7/20/2020	<0.20	<0.050	<0.020	<0.0099	<0.020	<0.099	<0.020
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	<0.19	<0.048	<0.019	<0.0096	<0.019	<0.096	<0.019
		7/15/2020	<0.19	<0.049	<0.019	<0.0097	<0.019	<0.097	<0.019
Headwaters Five Mile Creek	FIV-D	4/16/2020	<0.19	<0.048	<0.019	<0.0096	<0.019	<0.096	<0.019
		7/15/2020	<0.20	<0.049	<0.020	<0.0098	<0.020	<0.098	<0.020
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	<0.096	<0.024	<0.0096	<0.0048	<0.0096	<0.048	<0.0096
		7/20/2020	<0.20	<0.049	<0.020	<0.0098	<0.020	<0.098	<0.020

Table B-5e Water Quality Data (Pesticides 3)

HUC Watershed	Sample ID	Collection Date	Endrin aldehyde (µg/L)	G-BHC (Lindane) (µg/L)	Heptachlor (µg/L)	Heptachlor epoxide (µg/L)	Simazine (µg/L)	Methoxychlore (µg/L)	Toxaphene (µg/L)
Bachman Branch - Elm Fork Trinity	BAB-B	4/27/2020	<0.048	<0.024	<0.0048	<0.0048	<0.067	<0.95	<0.14
		7/20/2020	<0.099	<0.050	<0.0099	<0.0099	<0.07	<2.0	<0.30
Floyd Branch - White Rock Creek	FLO-A	4/16/2020	<0.096	<0.048	<0.0096	<0.0096	<0.066	<1.9	<0.29
		7/15/2020	<0.097	<0.049	<0.0097	<0.0097	<0.07	<1.9	<0.29
Headwaters Five Mile Creek	FIV-D	4/16/2020	<0.096	<0.048	<0.0096	<0.0096	<0.067	<1.9	<0.29
		7/15/2020	<0.098	<0.049	<0.0098	<0.0098	<0.07	<2.0	<0.29
White Rock Creek - White Rock Lake	DIX-A	4/27/2020	<0.048	<0.024	<0.0048	<0.0048	<0.067	<0.96	<0.14
		7/20/2020	<0.098	<0.049	<0.0098	<0.0098	<0.07	<2.0	<0.29

Appendix I:

Fort Worth Bioassessment Report

Rapid Bioassessment Characterizations of Six Monitored Watersheds within the City of Fort Worth, Spring and Fall 2020.

Introduction

The City of Fort Worth’s TPDES stormwater permit contains a monitoring component. To satisfy part of the monitoring requirements, Fort Worth participates in the Regional Wet Weather Characterization Program through the North Central Texas Council of Government (NCTCOG). Fort Worth’s monitoring program includes performing rapid bioassessments on representative creeks within six watersheds twice per year, at a minimum of two sites per creek. The watersheds selected for monitoring include Mary’s Creek, White’s Branch-Big Fossil Creek, Headwaters Sycamore Creek, Marine Creek-West Fork Trinity River, Lake Como-Clear Fork Trinity River, and Sycamore Creek-West Fork Trinity River. On each monitored creek within the watershed, three sites were selected for sampling: an upper reach site (1), a mid-reach site (2), and a lower reach site (3) (Table 1).

Additional sites not included in the Regional monitoring plan were sampled during 2019. One site further upstream on Mary’s Creek (MRY0), outside the City of Fort Worth’s city limits and which doesn’t receive discharge from the city’s MS4 system, was sampled this year during both spring and fall 2020. One site within the Farmer’s Branch watershed (FAR3), one within Henrietta Creek watershed (HEN3) and one site within Headwaters Elizabeth Creek watershed (ELI3) was sampled during spring and fall 2020 (Table 1). Additional sites within additional watersheds may be sampled in future years as resources allow.

Table 1: Bioassessment Sampling Site Names and Locations within nine Fort Worth Watersheds.

SITE NAME	LOCATION DESCRIPTION	STREAM NAME	HUC12 WATERSHED
MRY1	3900 block of Longvue crossing, FM 2871	Mary's Creek	Mary's Creek
MRY2	Loop IH-820 SW crossing, north of Team Ranch Rd	Mary's Creek	Mary's Creek
MRY3	At Winscott Road (Vickery Blvd.) crossing	Mary's Creek	Mary's Creek
BFC1	West of and parallel to Pepperidge Lane	Big Fossil Creek	White's Branch-Big Fossil Creek
BFC2	IH-35Wcrossing, north of Western Center Blvd	Big Fossil Creek	White's Branch-Big Fossil Creek
BFC3	Beach St. N crossing, north of Paula Ridge	Big Fossil Creek	White's Branch-Big Fossil Creek
SYC1	Intersection of IH-20 and IH-35W	Sycamore Creek	Headwaters Sycamore Creek
SYC2	Cobb Park West south of US-287 at low water crossing	Sycamore Creek	Headwaters Sycamore Creek
SYC3	End of Scott Avenue west of Beach Street	Sycamore Creek	Headwaters Sycamore Creek
MAR1	West of Angle Avenue in Buck Sansom Park	Marine Creek	Marine Creek-West Fork Trinity River
MAR2	Lincoln Park, north of 28th Street crossing	Marine Creek	Marine Creek-West Fork Trinity River
MAR3	Saunders Park north of NE 23rd, along Mule Alley	Marine Creek	Marine Creek-West Fork Trinity River
OVR1	NW of Granbury Rd and Trail Lake Dr intersection in Foster Park	Unnamed Tributary in Overton Park	Lake Como-Clear Fork Trinity River
OVR2	East of 3808 Overton Park West, near Tanbark Trail intersection	Unnamed Tributary in Overton Park	Lake Como-Clear Fork Trinity River
OVR3	Overton Park West south of intersection with Bellaire Dr. S	Unnamed Tributary in Overton Park	Lake Como-Clear Fork Trinity River
LFC1	2200 block Cantrell Sansom	Little Fossil Creek	Sycamore Creek-West Fork Trinity River
LFC2	upstream of IH35W crossing, south of Getsemani Baptist Church	Little Fossil Creek	Sycamore Creek-West Fork Trinity River
LFC3	West and southwest of Beach St. N and Long Ave. intersection	Little Fossil Creek	Sycamore Creek-West Fork Trinity River
MRY0+	FM3325 crossing	Mary's Creek	Mary's Creek
FAR3^	North of the intersection of Chalk Knoll Rd and Willowick	Farmer's Branch	Farmer's Branch
HEN3^	South of the Litsey Road crossing, east of the roundabout with Cleveland Gibbs Rd	Henrietta Creek	Henrietta Creek
ELI3^	East of the Cleveland Gibbs Rd crossing	Elizabeth Creek	Headwaters Elizabeth Creek

+Potential new reference site, non-regulatory site
^ Non-regulatory site

Methods

Rapid bioassessment elements include evaluation of chemical and physical water quality parameters, habitat assessment, and sample collection and analysis of benthic aquatic macroinvertebrate communities. Sampling was conducted during spring (May) and fall (October) 2020.

Habitat Assessments and Physico-chemical Sampling

Habitat assessments were performed at each site following guidelines for high gradient streams in Chapter 5 of USEPA's *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers, Second Edition*[1]. This assessment includes scoring 10 different habitat factors with available scores ranging from 0 to 20, with 0 representing poor conditions and 20 representing optimal habitat. Parameters evaluated in habitat assessments include bottom substrate and available cover suitability for colonization, embeddedness, flow regimes present, bottom scouring and sediment deposition, channel alteration, channel flow status, frequency of riffles or bends, stream bank stability, vegetative protection, and riparian vegetative zone width. Individual scores for these 10 factors are totaled for the overall habitat score.

Physical and chemical parameters collected and analyzed with portable meters include pH, dissolved oxygen (D.O.), turbidity, specific conductance, and water and air temperature. Colorimetric test kits were used to analyze nutrient concentrations of ammonia-nitrogen, phosphate, and nitrate-nitrogen. *Escherichia coli* (*E. coli*) bacteria analysis was included at all monitored sites during both spring and fall 2020 sampling events. *E. coli* samples were processed in-house by experienced storm water quality monitoring staff using approved Colilert® procedures and in accordance with City of Fort Worth Standard Operating Procedures (SOP). The physical characterization data sheet includes an estimated flow calculation. This calculation is made using the averages of five depth and velocity profiles across one measured stream width as well as a correction constant based on a rough or smooth stream bottom. The estimated flow calculation smooth/rough correction factor is based on the guidance for flow estimates found in TCEQ's Surface Water Quality Monitoring, Volume 1[2].

Biological Sample Collection

Aquatic benthic macroinvertebrates were collected at twenty two stream sites during two sampling events during 2020: spring (May) and fall (October). Macroinvertebrates were collected using a D-frame kick net with a 550 µm mesh from riffle areas. If there was no riffle area, samples were taken within run/glide areas or pools. Bottom substrate in front of the net opening was disturbed to dislodge organisms, which were collected in the net along with bottom material. Pooled sites were collected by gathering rock substrate and washing them into the D-frame net or into a sieve bucket. Collected samples were transferred from the D-frame

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[1] Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

[2] TCEQ, revised August 2012. Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods. TCEQ RG-415. August 2012.

net or sieve bucket to sample containers and preserved in the field with 100% isopropyl alcohol. Following transport to the in-house laboratory, macroinvertebrates in the samples were separated from the debris and identified. Samples which appeared to have more than 175 (+ or - 20%) were subsampled according to SOPs, and similar to those found in TCEQ's Surface Water Quality Monitoring, Volume 2[3]. Most organisms were identified to family level with a few noted exceptions. In accordance with the current City of Fort Worth SOP, Chironomidae was identified to sub-family, Turbellaria and Hirudinea were identified to class, and Nematoda was identified to phylum.

Aquatic Macroinvertebrate Data Analysis

The TCEQ macroinvertebrate Texas Index of Biotic Integrity (TX-IBI) for kick net samples was used to analyze the data. The TX-IBI methodology is found in the TCEQ's *Surface Water Quality Monitoring Procedures, Volume 2*[4] and applies 12 macroinvertebrate community structural and functional metrics for the assessment of biotic integrity. This TX-IBI method used is designed for macroinvertebrate samples collected with a D-frame kick net sampler. Biological metrics are calculated with the resulting macroinvertebrate identification data, an interim score is assigned to each individual metric, and the individual metric scores are summed to produce an overall score for each individual site. Scores generated at each site are compared to values in TCEQ guidelines to determine an aquatic life use rating. The values for the aquatic life use ratings found in the TCEQ guidelines were developed based on data collected from reference sites within each ecoregion. This method gives an individual value for each site without a direct comparison to a specific reference site, but to values from ecoregional reference sites. Individual sites may also be compared to themselves year to year on a seasonal basis (spring to spring and fall to fall) to demonstrate biological community changes within each reach.

Results and Discussion

Sampling conditions prior to and during spring sampling were considered to be typical with regular weather patterns. Prior to fall sampling, the area experienced little to no rainfall during September which led to moderate to severe drought conditions. By October, many streams had lower flows than normal, and some were intermittent with pools.

Habitat Assessments and Physico-chemical Sampling

Habitat assessment scores for spring and fall 2020 are shown in Table 2. Habitat assessment scores for MAR3 and LFC3 was ranked in the optimal category during spring sampling event and as sub-optimal during fall sampling, while BFC1 was rated with optimal habitat during both spring and fall. The remaining sites were ranked as either sub-optimal or marginal categories during both sampling events.

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[3] TCEQ, revised May 2014. Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data. TCEQ RG-416. May 2014.

[4] ibid

Spring and fall 2020 chemical water quality parameter ranges across all sampled sites are listed in Table 3. Physico-chemical data measurements taken during spring and fall 2020 sampling events are presented in Tables 4 through 7.

Any site which indicates probable sewage infiltration by visual and olfactory observation, elevated *E. coli* test results (>10,000 MPN/100mL) along with elevated ammonia-nitrogen (>1.0 mg/L) results are referred to the Fort Worth Water Department for investigation. There were no sites sampled during either sampling event indicated the presence of sewage infiltration. If any sample results were >2420 MPN/100 mL, the sites were retested with sample dilutions added to determine a more accurate number.

Table 2. Habitat Scores Collected for Mary's Creek, Big Fossil Creek, Sycamore Creek, Marine Creek, Overton Park, Little Fossil Creek, and Farmer's Branch in Spring and Fall 2020.

Site	Spring 2020	Fall 2020	Habitat Score	Value
MRY0[+]	155	138	Optimal	160-200
MRY1	132	106	Sub-optimal	110-159
MRY2	125	68	Marginal	60-109
MRY3	138	99	Poor	<60
FAR3^	151	89		
BFC1	185	170		
BFC2	108	107		
BFC3	145	138		
SYC1	98	106		
SYC2	121	138		
SYC3	119	115		
MAR1	159	119		
MAR2	155	108		
MAR3	163	137		
OVR1	96	112		
OVR2	113	111		
OVR3	84	89		
LFC1	149	131		
LFC2	160	125		
LFC3	112	103		
HEN3^	147	126		
ELI3^	132	118		

+=Potential new reference site, non-regulatory site
^= Non-regulatory site

Table 3. Minimum and Maximum Values of Water Quality Parameters Spring and Fall 2020 Bioassessment Sampling.

	Spring 2020		Fall 2020	
Parameter	**Minimum**	**Maximum**	**Minimum**	**Maximum**
Water temperature, ºC	18.1	23.6	15.3	22.6
pH, s.u.	7.53	8.55	7.36	8.37
Conductivity (µS)	410	670	240	930
DO (mg/L)	5.13	12.22	2.17	8.48
Turbidity (NTUs)	0.05	6.28	0.13	5.10
NO3-N (mg/L)	0.00	1.86	0.00	1.81
NH3-N (mg/L)	0.00	1.51	0.02	1.47
PO4 (mg/L)	0.00	0.11	0.00	0.44
E. coli (MPN/100mL)	23	1120	12	517

Table 4. Physico-chemical Results for Samples Collected during Bioassessments from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Spring 2020.

	STATION										
PARAMETER	**MRY0[+]**	**MRY1**	**MRY2**	**MRY3**	**FAR3^**	**BFC1**	**BFC2**	**BFC3**	**SYC1**	**SYC2**	**SYC3**
Width (ft)	10	41.0	28.0	75.0	7.0	14.0	41.0	60.0	46.0	54.0	30.0
Avg. depth (ft)	0.34	0.58	0.54	0.28	0.20	0.34	0.28	0.20	0.48	0.80	0.3
Avg. Velocity (ft/s)	0.148	0.18	0.41	0.59	0.24	0.23	0.29	0.31	0.04	0.03	0.108
Estimated flow (cfs)	0.403	3.89	5.63	11.15	0.27	0.87	2.63	3.37	0.78	0.90	0.933
Water Temperature (ºC)	18.1	22.0	22.6	21.4	19.0	22.2	20.9	23.6	21.6	21.0	21.3
pH (s.u.)	7.63	8.19	8.23	8.55	8.14	7.94	8.23	8.09	8.1	8.06	8.13
Conductivity (µS)	600	530	530	590	660	580	520	500	410	430	490
DO (mg/L)	5.95	8.45	7.25	6.74	12.22	7.83	9.17	8.21	7.05	6.51	7.9
Turbidity (NTUs)	2.03	0.47	0.05	1.10	1.48	5.21	1.11	3.34	1.88	2.54	1.99
NO_3-N (mg/L)	0.02	0.08	0.05	0.26	1.86	0.02	0.17	0.06	0.07	0.09	0.20
NH_3-N (mg/L)	0.00	0.00	0.09	0.04	0.00	0.41	0.14	0.22	0.30	0.05	0.05
PO_4 (mg/L)	0.00	0.00	0.00	0.05	0.00	0.02	0.11	0.02	0.01	0.08	0.01
E. coli (MPN/100mL)	23	49	276	196	649	82	236	51	84	299	727

+=Potential new reference site, non-regulatory site

^= Non-regulatory site

Table 5. Physico-chemical Results for Samples Collected during Bioassessments from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring 2020.

PARAMETER	STATION										
	MAR1	**MAR2**	**MAR3**	**OVR1**	**OVR2**	**OVR3**	**LFC1**	**LFC2**	**LFC3**	**HEN3^**	**ELI3^**
Width (ft)	14.0	26.0	16.0	12.0	18.0	24.0	10.0	20.0	15.0	18	23
Avg. depth (ft)	0.44	0.30	0.40	0.48	0.22	0.66	0.50	0.42	0.50	0.66	0.36
Avg. Velocity (ft/s)	0.07	0.13	0.16	0.09	0.07	0.07	0.08	0.08	0.15	0.126	0.206
Estimated flow (cfs)	0.36	0.84	0.82	0.42	0.23	0.91	0.36	0.54	1.03	1.347	1.45
Water Temperature (ºC)	18.4	19.3	19.9	23.0	23.3	22.9	19.9	19.2	18.5	22.1	21.8
pH (s.u.)	8.46	8.19	8.21	7.84	7.89	7.53	7.79	8.09	7.97	8.07	7.89
Conductivity (µS)	420	460	500	560	670	650	590	470	480	470	510
DO (mg/L)	10.45	8.33	7.30	6.91	7.73	5.13	5.36	6.45	7.05	8.01	8.8
Turbidity (NTUs)	1.25	0.79	1.49	2.14	0.84	0.57	1.51	6.28	1.28	2.58	2
NO_3-N (mg/L)	0.10	0.33	0.96	0.00	0.07	0.05	0.21	0.02	0.07	0.05	0.12
NH_3-N (mg/L)	0.40	1.04	0.02	0.57	0.03	1.51	0.26	0.03	0.02	0.18	0.00
PO_4 (mg/L)	0.00	0.00	0.10	0.00	0.00	0.07	0.01	0.00	0.05	0.00	0.00
E. coli (MPN/100mL)	41	69	161	184	119	148	93	1120	361	53	114

^= Non-regulatory site

Table 6. Physico-chemical Results for Samples Collected during Bioassessments from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Fall 2020.

	STATION									
PARAMETER	**MRY0[+]**	**MRY1**	**MRY2**	**MRY3**	**FAR3^**	**BFC1**	**BFC2**	**BFC3**	**SYC1**	**SYC2**	**SYC3**
Width (ft)	6	25.0	22.7	19.0	--	12.0	81.3	49.0	26.0	54.0	30.0
Avg. depth (ft)	0.12	0.46	0.22	0.34	--	0.20	0.12	0.36	0.46	0.46	0.3
Avg. Velocity (ft/s)	0.02	0.040	0.050	0.050	--	0.170	0.020	0.070	0.050	0.124	0.100
Estimated flow (cfs)	0.013	0.410	0.220	0.290	--	0.330	0.180	1.110	0.480	2.380	0.810
Water Temperature (ºC)	22.1	15.8	16.3	17.4	21.8	22.6	21.7	20.8	20.3	19.7	19.7
pH (s.u.)	7.36	8.11	8.37	8.13	7.58	7.94	8.24	8.22	7.88	7.75	7.91
Conductivity (µS)	640	250	240	340	550	610	600	630	530	470	600
DO (mg/L)	2.17	8.48	7.04	7.82	2.26	6.10	6.44	6.34	7.49	6.94	6.18
Turbidity (NTUs)	0.65	0.13	0.42	0.42	3.88	1.41	3.73	3.23	1.15	2.46	2.52
NO_3-N (mg/L)	0.07	0.11	0.12	0.11	0.05	0.20	0.13	0.78	0.00	0.03	0.07
NH_3-N (mg/L)	0.27	0.03	0.11	0.04	0.23	0.02	1.47	0.73	0.02	0.05	0.16
PO_4 (mg/L)	NS	0.00	0.04	0.00	NS	0.32	0.44	0.06	0.01	0.00	0.00
E. coli (MPN/100mL)	47	17	24	12	326	51	517	117	20	68	142

FAR3 was intermittent with pools only during fall sampling. Pools varied from 6" to >2.5'.

+=Potential new reference site, non-regulatory site

^= Non-regulatory site

NS=not sampled

Table 7. Physico-chemical Results for Samples Collected during Bioassessments from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Fall 2020.

	STATION										
PARAMETER	**MAR1**	**MAR2**	**MAR3**	**OVR1**	**OVR2**	**OVR3**	**LFC1**	**LFC2**	**LFC3**	**HEN3^**	**ELI3^**
Width (ft)	9.0	22.2	15.0	11.3	18.0	14.0	17.0	7.0	15.9	17.1	24
Avg. depth (ft)	0.5	0.44	0.20	0.26	0.28	0.20	0.20	0.40	0.50	0.38	0.24
Avg. Velocity (ft/s)	0.0	0.020	0.090	0.020	0.230	0.040	0.010	0.030	0.020	0.04	0.34
Estimated flow (cfs)	0.1	0.160	0.220	0.050	0.930	0.100	0.310	0.070	0.140	0.21	1.57
Water Temperature (ºC)	15.3	15.7	18.0	19.6	19.9	20.9	19.3	18.8	19.2	20.4	20.7
pH (s.u.)	8.01	8.25	7.96	7.79	8.08	7.67	7.88	8.23	8.17	7.87	8.27
Conductivity (µS)	800	700	930	270	290	380	720	630	770	560	850
DO (mg/L)	3.65	5.20	7.50	3.55	8.12	6.04	4.14	6.55	6.26	2.2	5.85
Turbidity (NTUs)	0.64	0.33	1.05	0.38	4.42	1.24	5.10	2.18	1.56	2.16	1.41
NO_3-N (mg/L)	0.40	1.16	1.81	0.15	0.42	0.16	0.18	0.07	0.20	0	0.1
NH_3-N (mg/L)	0.24	0.05	0.21	0.64	0.48	0.44	1.17	0.66	0.94	0.32	0.15
PO_4 (mg/L)	0.12	0.00	0.00	0.00	0.00	0.00	0.30	0.15	0.03	NS	NS
E. coli (MPN/100mL)	86	365	129	238	127	345	27	49	81	56	64

^= Non-regulatory site
NS=not sampled

Biological Data Analysis

Spring 2020 TX-IBI metric calculations (Table 8 and Figure 1) returned a score of “high” aquatic life use for eight sites (BFC1, BFC2, BFC3, SYC2, MAR1, LFC1, LFC2, and LFC3). Seven sites (MRY1, SYC1, MAR2, MAR3, OVR2, OVR3, and ELI3) indicated scores within the “intermediate” and the remaining seven sites (MRY0, MRY2, MRY3, FAR3, and HEN3) showed “limited” aquatic life use. TX-IBI macroinvertebrate metric calculations for spring samples are displayed in Tables 9-12. Spring macroinvertebrate abundance data are shown in Tables 17-18.

TX-IBI analysis for the fall 2020 macroinvertebrate data (Table 8 and Figure 2) indicated four sites (MRY0, BFC3, MAR1, and LFC1) were rated with “high” aquatic life use and sixteen sites (MRY1, MRY2, MRY3, FAR3, BFC1,BFC2, SYC1, SYC2, SYC3, MAR2, MAR3, OVR2, OVR3, LFC2, LFC3, and HEN3) were rated with “intermediate” aquatic life use. The remaining two sites (OVR1 and ELI3) indicated a “limited” aquatic life use. Results for the individual metric calculations are included in Tables 13-16. Macroinvertebrate abundance data for fall are presented in Tables 19-20.

Comparison of each site’s scores will be made on a seasonal basis at the end of monitoring or permit term.

Table 8. Texas Macroinvertebrate Index of Biotic Integrity Scores (TX-IBI) for Mary's Creek, Farmer's Branch, Big Fossil Creek, Sycamore Creek, Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring and Fall 2020.

Site	Spring 2020	Fall 2020	Aquatic Life Use	Score
MRY0+	21	31	Exceptional	>36
MRY1	28	27	High	29-36
MRY2	20	28	Intermediate	22-28
MRY3	18	26	Limited	<22
FAR3^	17	23		
BFC1	29	26		
BFC2	30	26		
BFC3	33	30		
SYC1	25	25		
SYC2	29	28		
SYC3	16	24		
MAR1	29	29		
MAR2	25	28		
MAR3	22	25		
OVR1	17	20		
OVR2	23	24		
OVR3	28	26		
LFC1	29	30		
LFC2	30	28		
LFC3	30	28		
HEN3^	20	28		
ELI3^	22	21		

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Conclusion

Rapid bioassessments were performed on stream sites within nine watersheds in Fort Worth during spring and fall 2020. Four new sites were sampled, increasing the coverage of the city's watersheds. Habitat assessment scores for sampled sites were classified in the sub-optimal or marginal categories except for three sites (BFC1, MAR3, and LFC2) during spring, which were rated as having optimal habitat. All sites but one were rated as having sub-optimal or marginal habitat during fall sampling, the exception being BFC1, rated with optimal habitat. Physico-chemical test results were within normal range for all sampled sites during both sampling events.

Texas IBI calculations for the spring 2020 macroinvertebrate data indicated a fairly even spread of aquatic life uses between the sites, with eight sites rated with high aquatic life use, seven rated with intermediate aquatic life use, and seven rated with limited aquatic life use. Fall 2020 data analysis indicated fewer sites rated with high aquatic life use (four), more sites rated with intermediate aquatic life use (sixteen) and fewer sites rated with limited aquatic life use (two).

Table 9. TX-IBI Metric Calculations for Macroinvertebrate Community Samples Collected from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Spring 2020.

TX-IBI Metrics	MRY0+	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Taxa Richness	21	21	11	14	12	16	19	21	18	20	13
EPT taxa richness	6	9	5	3	3	5	6	9	8	7	5
HBI biotic index	5.30	4.67	5.07	5.22	4.92	5.32	5.20	4.05	3.98	4.11	5.70
% Chironomidae	44.96	38.55	64.52	56.36	19.69	32.83	12.40	10.33	19.59	21.26	79.50
% dominant taxon	41.79	35.30	63.71	43.64	61.42	24.24	23.99	25.00	39.92	27.57	42.50
% dominant FFG	58.77	61.45	70.16	67.80	81.10	55.05	63.34	41.85	66.10	60.75	85.00
% Predators	3.92	7.68	0.40	3.81	1.97	8.08	16.71	13.59	1.32	5.61	3.00
Ratio of intolerant:tolerant taxa	0.85	1.35	0.55	0.65	2.30	0.74	1.38	4.58	3.39	3.12	0.21
% of total Trichoptera as Hydropsychidae	87.72	39.44	43.59	38.89	52.94	17.65	7.46	43.59	67.95	59.46	60.00
# of non-insect taxa	6.0	5.0	1.0	4.0	3.0	7.0	7.0	7.0	4.0	7.0	2.0
% collectors-gatherers	58.77	61.45	70.16	67.80	81.10	55.05	63.34	41.85	26.93	31.07	85.00
% of total number as Elmidae	2.61	3.69	1.61	0.42	0.79	9.09	1.62	0.00	0.56	0.70	0.00

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 10. TX-IBI Scores for Macroinvertebrate Community Samples Collected from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Spring 2019.

TX-IBI Scores	MRY0[+]	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Taxa Richness	3	3	2	2	2	3	3	3	3	3	2
EPT taxa richness	2	3	2	1	1	2	2	3	3	3	2
HBI biotic index	1	2	2	2	2	1	2	3	3	3	1
% Chironomidae	1	1	1	1	1	1	2	2	1	1	1
% dominant taxon	1	2	1	1	1	3	3	3	1	3	1
% dominant FFG	1	1	1	1	1	1	1	3	1	1	1
% Predators	1	4	1	1	1	4	3	4	1	4	1
Ratio of intolerant:tolerant taxa	1	1	1	1	2	1	1	3	3	2	1
% of total Trichoptera as Hydropsychidae	1	3	3	3	2	4	4	3	2	2	2
# of non-insect taxa	4	3	1	3	2	4	4	4	3	4	2
% collectors-gatherers	1	1	1	1	1	1	1	1	3	2	1
% of total number as Elmidae	4	4	4	1	1	4	4	1	1	1	1
Total Score	21	28	20	18	17	29	30	33	25	29	16
Aquatic Life Use Rating	Limited	Intermediate	Limited	Limited	Limited	High	High	High	Intermediate	High	Limited

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 11. TX-IBI Metric Calculations for Macroinvertebrate Community Samples Collected from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring 2020.

TX-IBI Metrics	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Taxa Richness	18	16	16	10	22	16	21	18	17	20	13
EPT taxa richness	5	5	6	1	6	6	6	7	5	6	6
HBI biotic index	4.98	5.59	4.74	6.13	4.84	4.80	4.75	5.03	5.06	6.57	4.80
% Chironomidae	14.23	67.38	47.87	91.37	46.09	37.61	28.20	37.33	19.35	27.70	50.26
% dominant taxon	43.26	34.22	30.79	73.38	35.43	19.72	20.62	20.44	25.27	36.15	43.01
% dominant FFG	70.22	74.33	49.66	91.37	58.06	52.29	61.14	64.00	63.44	72.64	53.89
% Predators	6.37	4.81	1.35	2.16	4.38	8.72	20.85	15.11	6.45	3.04	4.15
Ratio of intolerant:tolerant taxa	1.92	0.35	1.00	0.02	0.99	1.34	1.59	1.10	1.70	0.43	0.95
% of total Trichoptera as Hydropsychidae	22.22	55.00	64.56	0.00	41.90	17.07	29.31	48.65	38.78	55.56	49.09
# of non-insect taxa	4.0	5.0	4.0	3.0	6.0	5.0	9.0	6.0	6.0	6.0	3.0
% collectors-gatherers	70.22	74.33	49.66	91.37	58.06	52.29	61.14	64.00	63.44	72.64	53.89
% of total number as Elmidae	3.93	2.67	0.00	0.00	0.00	0.00	7.35	12.89	3.23	0.34	1.04

^ =Non-regulatory site

Table 12. TX-IBI Scores for Macroinvertebrate Community Samples Collected from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring 2020.

TX-IBI Scores	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Taxa Richness	3	3	3	2	4	3	3	3	3	3	2
EPT taxa richness	2	2	2	1	2	2	2	3	2	2	2
HBI biotic index	2	1	2	1	2	2	2	2	2	1	2
% Chironomidae	2	1	1	1	1	1	1	1	1	1	1
% dominant taxon	1	2	3	1	2	4	4	4	3	2	1
% dominant FFG	1	1	2	1	1	2	1	1	1	1	2
% Predators	4	4	1	1	1	4	3	4	4	1	1
Ratio of intolerant:tolerant taxa	2	1	1	1	1	1	1	1	2	1	1
% of total Trichoptera as Hydropsychidae	4	2	2	4	3	4	3	3	3	2	3
# of non-insect taxa	3	3	3	2	4	3	4	4	4	4	2
% collectors-gatherers	1	1	1	1	1	1	1	1	1	1	1
% of total number as Elmidae	4	4	1	1	1	1	4	3	4	1	4
Total Score	29	25	22	17	23	28	29	30	30	20	22
Aquatic Life Use Rating	High	Intermediate	Intermediate	Limited	Intermediate	Intermediate	High	High	High	Limited	Intermediate

^ =Non-regulatory site

Table 13. TX-IBI Metric Calculations for Macroinvertebrate Community Samples Collected from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Fall 2020.

TX-IBI Metrics	MRY0[+]	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Taxa Richness	21	22	20	21	14	15	20	22	18	13	11
EPT taxa richness	4	4	7	6	4	6	6	8	7	4	7
HBI biotic index	7.42	5.70	5.88	5.45	6.63	4.72	5.84	4.95	4.92	4.50	4.30
% Chironomidae	6.34	17.30	47.92	26.91	56.00	42.89	12.68	32.38	42.61	37.43	27.00
% dominant taxon	35.61	19.46	39.25	28.70	28.67	39.08	27.48	25.62	40.43	35.20	41.77
% dominant FFG	63.90	45.95	65.28	60.99	46.00	56.51	56.66	55.87	50.00	47.49	64.14
% Predators	16.59	38.92	17.74	32.74	29.33	6.01	19.24	10.68	6.52	6.70	7.17
Ratio of intolerant:tolerant taxa	0.18	1.23	0.46	0.99	0.17	1.15	0.74	1.34	0.90	1.45	2.54
% of total Trichoptera as Hydropsychidae	16.67	No Trich	0.00	25.00	0.00	37.14	3.85	73.97	31.46	18.42	20.59
# of non-insect taxa	5.0	9.0	6.0	6.0	5.0	3.0	7.0	8.0	4.0	3.0	0.0
% collectors-gatherers	15.12	45.95	65.28	60.99	46.00	56.51	56.66	55.87	50.00	47.49	64.14
% of total number as Elmidae	0.98	9.73	3.40	13.45	0.00	1.60	0.85	2.14	0.87	2.79	0.00

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 14. TX-IBI Scores for Macroinvertebrate Community Samples Collected from Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Fall 2020.

TX-IBI Scores	MRY0+	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Taxa Richness	3	4	3	3	2	3	3	4	3	2	2
EPT taxa richness	2	2	3	2	2	2	2	3	3	2	3
HBI biotic index	1	1	1	1	1	2	1	2	2	3	3
% Chironomidae	3	1	1	1	1	1	2	1	1	1	1
% dominant taxon	2	4	2	3	3	2	3	3	1	2	1
% dominant FFG	1	2	1	1	2	1	1	1	2	2	1
% Predators	3	2	3	2	2	4	3	4	4	4	4
Ratio of intolerant:tolerant taxa	1	1	1	1	1	1	1	1	1	1	2
% of total Trichoptera as Hydropsychidae	4	1	4	4	4	3	4	2	3	4	4
# of non-insect taxa	3	4	4	4	3	2	4	4	3	2	1
% collectors-gatherers	4	1	1	1	1	1	1	1	1	1	1
% of total number as Elmidae	4	4	4	3	1	4	1	4	1	4	1
Total Score	31	27	28	26	23	26	26	30	25	28	24
Aquatic Life Use Rating	High	Intermediate	Intermediate	Intermediate	Intermediate	Intermediate	Intermediate	High	Intermediate	Intermediate	Intermediate

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 15. TX-IBI Metric Calculations for Macroinvertebrate Community Samples Collected from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Fall 2020.

TX-IBI Metrics	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Taxa Richness	22	24	18	12	20	16	22	16	21	21	17
EPT taxa richness	5	6	7	5	7	6	5	5	6	7	6
HBI biotic index	6.16	5.78	5.25	5.92	5.35	5.02	6.44	4.82	4.70	4.78	5.68
% Chironomidae	34.05	18.33	26.01	87.83	63.82	29.20	25.14	39.58	37.55	24.36	69.36
% dominant taxon	20.69	25.48	25.43	75.66	57.74	24.34	18.99	37.50	35.10	32.69	61.27
% dominant FFG	46.55	40.00	56.07	80.95	73.61	54.42	55.87	53.65	70.20	59.62	75.14
% Predators	37.07	16.43	13.87	12.70	8.80	13.72	24.58	9.38	7.76	19.87	2.31
Ratio of intolerant:tolerant taxa	0.51	0.99	1.14	0.09	0.49	1.43	0.42	1.21	1.30	1.89	0.24
% of total Trichoptera as Hydropsychidae	0.00	86.29	79.49	41.67	48.87	8.33	20.00	45.59	15.84	34.78	0.00
# of non-insect taxa	8.0	9.0	5.0	3.0	7.0	4.0	9.0	4.0	5.0	5.0	6.0
% collectors-gatherers	46.55	40.00	56.07	80.95	73.61	54.42	55.87	53.65	70.20	59.62	75.14
% of total number as Elmidae	12.50	10.24	20.23	0.00	0.00	0.00	6.70	2.08	7.55	2.56	0.00

^ =Non-regulatory site

Table 16. TX-IBI Scores for Macroinvertebrate Community Samples Collected from Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Fall 2020.

TX-IBI Scores	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Taxa Richness	4	4	3	2	3	3	4	3	3	3	3
EPT taxa richness	2	2	3	2	3	2	2	2	2	3	2
HBI biotic index	1	1	2	1	1	2	1	2	2	2	1
% Chironomidae	1	1	1	1	1	1	1	1	1	1	1
% dominant taxon	4	3	3	1	1	3	4	2	2	2	1
% dominant FFG	2	3	1	1	1	1	1	2	1	1	1
% Predators	2	3	4	4	4	4	3	4	4	3	1
Ratio of intolerant:tolerant taxa	1	1	1	1	1	1	1	1	1	2	1
% of total Trichoptera as Hydropsychidae	4	1	1	3	3	4	4	3	4	3	4
# of non-insect taxa	4	4	3	2	4	3	4	3	3	3	4
% collectors-gatherers	1	2	1	1	1	1	1	1	1	1	1
% of total number as Elmidae	3	3	2	1	1	1	4	4	4	4	1
Total Score	29	28	25	20	24	26	30	28	28	28	21
Aquatic Life Use Rating	High	Intermediate	Intermediate	Limited	Intermediate	Intermediate	High	Intermediate	Intermediate	Intermediate	Limited

^ =Non-regulatory site

Table 17. Macroinvertebrate abundances collected at each sample site along Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Spring 2020.

Common Name	Order	Family	MRY0^{+}	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Flatworms	Turbellaria		0	32	0	0	0	9	49	21	2	5	0
Worms	Oligochaeta	Tubificidae	1	0	0	5	0	0	1	0	0	0	0
		Naididae	1	2	0	2	1	0	1	1	3	1	3
Leeches	Hirudinea		0	0	0	0	0	1	9	1	0	7	0
Snails	Gastropoda	Physidae	40	0	0	1	25	0	0	1	0	2	1
		Planorbidae	1	6	0	0	0	6	0	0	5	1	0
		Lymnaeidae	0	0	0	0	1	0	0	0	0	0	0
		Hydrobiidae	0	0	1	0	0	0	0	0	0	0	0
		Ancylidae	0	0	0	0	0	1	1	0	8	1	0
Clams	Bivalvia	Corbiculidae	0	0	0	0	0	13	7	4	0	1	0
		Sphaeridae	1	5	0	0	0	2	0	1	0	0	0
Crawfish	Decapoda	Cambaridae	0	0	0	0	0	0	0	0	0	0	0
Scuds	Amphipoda	Hyallelidae	2	14	0	1	0	26	89	5	0	0	0
Mayflies	Ephemeroptera	Baetidae	16	126	10	26	156	6	87	46	27	46	1
		Caenidae	48	1	0	0	0	0	5	1	9	2	11
		Heptageniidae	8	2	0	0	0	0	0	0	0	0	0
		Leptophyphidae	0	0	0	0	0	0	0	1	1	0	0
Caddisflies	Trichoptera	Brachycentridae	10	2	4	0	0	0	0	2	6	3	0
		Helicopsychidae	0	32	0	0	0	4	37	32	12	4	1
		Hydropsychidae	100	56	17	14	9	9	5	34	106	88	3
		Hydroptilidae	4	41	11	22	8	37	24	4	5	3	1
		Leptoceridae	0	3	0	0	0	0	1	5	0	0	0
		Philopotamidae	0	8	7	0	0	1	0	1	27	50	0
Dragonflies	Anisoptera	Gomphidae	0	1	0	0	0	0	0	0	0	0	0
		Corduliidae	0	0	0	0	0	0	0	0	0	0	0
Damselflies	Zygoptera	Coenagrionidae	2	0	0	0	0	0	2	1	1	0	0

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 17. Macroinvertebrate abundances collected at each sample site along Mary's Creek, Farmer's Branch, Big Fossil Creek, and Sycamore Creek in Spring 2020, continued.

Common Name	Order	Family	MRY0[+]	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
True water bugs	Hemiptera	Corixidae	0	0	0	0	0	0	0	0	0	0	1
		Gerridae	1	0	0	0	0	0	0	0	0	0	0
		Hebridae	0	0	0	0	0	0	0	0	0	0	0
		Mesoveliidae	0	0	0	0	0	0	0	0	0	0	0
Beetles	Coleoptera	Curculionidae	0	0	0	0	0	0	0	0	0	0	0
		Dytiscidae	0	0	0	0	1	0	0	0	0	0	0
		Elmidae	14	25	4	1	2	18	6	0	3	3	0
		Haliplidae	0	0	0	0	0	0	0	0	0	0	0
		Hydrophilidae	1	0	0	0	1	0	0	0	0	0	0
Butterflies and moths	Lepidoptera	Crambidae	0	0	0	0	0	0	0	0	0	0	0
Midges and flies	Diptera	Ceratopogonidae	9	3	1	0	0	0	1	1	0	2	0
		Psychodidae	0	0	0	0	0	0	0	0	0	0	1
		Simuliidae	36	57	33	29	0	0	0	3	212	118	18
		Stratiomyidae	0	0	0	1	0	0	0	0	0	0	0
		Tabanidae	0	0	0	0	0	0	0	0	0	0	0
		Tipulidae	0	0	0	1	0	0	0	0	0	0	0
		Chironominae	224	239	158	103	41	48	39	18	88	75	69
		Tanypodinae	8	16	0	9	3	6	1	1	4	10	5
		Orthocladiinae	9	6	2	21	6	11	6	0	12	6	85
Number of Individuals			536	677	248	236	254	198	371	184	531	428	200

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 18. Macroinvertebrate abundances collected at each sample site along Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring 2020.

Common Name	Order	Family	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Flatworms	Turbellaria		0	0	0	1	18	10	74	27	9	0	8
Worms	Oligochaeta	Tubificidae	0	3	0	0	0	0	1	0	0	0	0
		Naididae	0	3	6	0	9	4	2	19	27	107	0
Leeches	Hirudinea		5	4	1	3	4	0	4	1	1	0	0
Snails	Gastropoda	Physidae	25	3	1	14	3	1	3	1	3	10	1
		Planorbidae	1	0	0	0	2	4	4	0	0	1	1
		Lymnaeidae	0	0	0	0	0	0	0	0	0	0	0
		Hydrobiidae	0	0	0	0	0	0	0	0	0	1	0
		Ancylidae	0	0	0	0	0	0	1	1	0	0	0
Clams	Bivalvia	Corbiculidae	0	0	0	0	0	0	0	0	0	3	0
		Sphaeridae	0	0	0	0	0	0	8	1	0	0	0
Crawfish	Decapoda	Cambaridae	0	1	0	0	0	0	0	0	1	0	0
Scuds	Amphipoda	Hyallelidae	72	0	1	0	11	1	21	0	2	2	0
Mayflies	Ephemeroptera	Baetidae	231	2	3	0	87	19	75	12	47	26	5
		Caenidae	2	3	2	0	1	16	14	6	0	1	0
		Heptageniidae	0	0	0	0	0	0	0	0	0	0	0
		Leptophyphidae	0	0	0	0	0	0	0	0	0	1	0
Caddisflies	Trichoptera	Brachycentridae	0	1	26	0	7	3	9	4	5	2	3
		Helicopsychidae	1	0	4	0	0	0	21	1	7	0	1
		Hydropsychidae	8	11	102	0	44	7	17	18	19	25	27
		Hydroptilidae	27	8	26	1	52	29	11	13	18	18	13
		Leptoceridae	0	0	0	0	0	0	0	0	0	0	0
		Philopotamidae	0	0	0	0	2	2	0	1	0	0	11
Dragonflies	Anisoptera	Gomphidae	0	0	0	0	0	0	0	0	0	0	0
		Corduliidae	0	0	0	0	0	0	0	0	0	1	0
Damselflies	Zygoptera	Coenagrionidae	0	0	0	0	1	0	0	0	0	2	0

^ =Non-regulatory site

Table 18. Macroinvertebrate abundances collected at each sample site along Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek in Spring 2020, continued.

Common Name	**Order**	**Family**	**MAR1**	**MAR2**	**MAR3**	**OVR1**	**OVR2**	**OVR3**	**LFC1**	**LFC2**	**LFC3**	**HEN3^**	**ELI3^**
True water bugs	Hemiptera	Corixidae	0	0	0	0	0	0	0	0	0	0	0
		Gerridae	0	0	0	0	0	0	0	0	0	0	0
		Hebridae	0	1	0	0	0	0	0	0	0	0	0
		Mesoveliidae	0	0	0	1	0	0	0	0	0	0	0
Beetles	Coleoptera	Curculionidae	1	0	0	0	0	0	0	0	0	0	0
		Dytiscidae	0	0	0	0	0	0	0	0	0	0	0
		Elmidae	21	5	0	0	0	0	31	29	6	1	2
		Haliplidae	2	0	0	0	0	0	0	0	0	0	0
		Hydrophilidae	0	0	0	0	2	0	0	0	0	1	0
Butterflies and moths	Lepidoptera	Crambidae	0	0	4	0	1	0	0	0	0	0	0
Midges and flies	Diptera	Ceratopogonidae	0	0	1	0	0	0	5	0	1	0	0
		Psychodidae	1	0	0	0	2	0	0	0	0	0	0
		Simuliidae	60	16	55	3	205	39	2	7	4	12	24
		Stratiomyidae	1	0	0	1	3	0	0	0	0	0	0
		Tabanidae	0	0	0	0	0	1	0	0	0	0	0
		Tipulidae	0	0	0	0	1	0	0	0	0	0	0
		Chironominae	37	64	72	49	299	43	87	46	15	61	83
		Tanypodinae	29	4	4	1	12	8	5	6	1	5	0
		Orthocladiinae	10	58	137	204	78	31	27	32	20	16	14
Number of Individuals			534	187	445	278	844	218	422	225	186	296	193

^ =Non-regulatory site

Table 19. Macroinvertebrate abundances collected at each sample site along Mary's Creek, Farmer's Branch, Big Fossil Creek and Sycamore Creek during Fall 2020.

Common Name	**Order**	**Family**	**MRY0^{+}**	**MRY1**	**MRY2**	**MRY3**	**FAR3^**	**BFC1**	**BFC2**	**BFC3**	**SYC1**	**SYC2**	**SYC3**
Flatworms	Turbellaria		0	6	0	1	0	7	16	7	1	3	0
Worms	Oligochaeta	Lumbriculidae	0	0	0	0	0	0	0	0	0	0	0
		Tubificidae	0	4	0	1	3	0	6	0	0	0	0
		Naididae	2	3	0	1	5	0	0	0	1	0	0
Leeches	Hirudinea		0	4	1	0	0	0	38	1	1	0	0
Snails	Gastropoda	Physidae	73	11	12	0	31	1	0	9	0	0	0
		Planorbidae	56	2	4	1	0	0	5	0	0	0	0
		Lymnaeidae	1	0	0	0	2	0	0	3	0	0	0
		Ancylidae	0	0	0	0	0	0	0	1	14	4	0
Clams	Bivalvia	Corbiculidae	0	7	1	1	0	0	4	5	0	0	0
		Sphaeridae	0	3	0	4	0	0	1	1	0	1	0
Crawfish	Decapoda	Cambaridae	0	0	1	0	2	0	0	0	0	0	0
Scuds	Amphipoda	Hyallelidae	13	3	18	0	0	13	130	2	0	0	0
Mayflies	Ephemeroptera	Baetidae	5	2	2	64	10	65	38	71	12	17	99
		Caenidae	0	4	5	1	6	0	4	0	3	0	1
		Heptageniidae	0	3	24	0	0	0	0	1	0	0	0
		Leptophyphidae	0	21	28	0	0	0	31	2	0	0	2
Caddisflies	Trichoptera	Brachycentridae	0	0	0	1	0	18	0	2	3	1	0
		Helicopsychidae	1	0	3	1	0	0	63	5	7	0	23
		Hydropsychidae	1	0	0	2	0	65	4	54	28	14	14
		Hydroptilidae	0	0	0	0	1	22	37	3	0	0	3
		Leptoceridae	0	0	1	0	0	1	0	0	3	0	0
		Philopotamidae	4	0	1	4	1	69	0	9	48	61	28
		Polycentropodidae	0	0	0	0	0	0	0	0	0	0	0
Dragonflies	Anisoptera	Gomphidae	1	0	0	2	0	0	0	0	0	0	0
		Libellulidae	5	1	0	0	1	1	2	0	0	0	0

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 19. Macroinvertebrate abundances collected at each sample site along Mary’s Creek, Farmer’s Branch, Big Fossil Creek and Sycamore Creek during Fall 2020, continued.

Common Name	Order	Family	MRY0+	MRY1	MRY2	MRY3	FAR3^	BFC1	BFC2	BFC3	SYC1	SYC2	SYC3
Damselflies	Zygoptera	Coenagrionidae	7	13	19	43	0	3	26	7	7	1	3
		Calopterygidae	0	0	0	0	0	0	0	0	1	0	0
True water bugs	Hemiptera	Gerridae	0	0	0	0	0	0	0	0	0	0	0
		Hebridae	0	0	0	0	0	0	0	0	0	4	0
		Mesoveliidae	0	0	0	0	0	0	0	0	0	0	0
		Naucoridae	0	0	0	0	0	0	0	0	0	0	0
		Veliidae	0	0	0	1	0	0	0	0	0	0	0
Beetles	Coleoptera	Elmidae	2	18	9	30	0	8	4	6	2	5	0
		Hydrophilidae	8	10	6	1	0	0	4	0	0	0	0
Dobsonflies	Megaloptera	Corydalidae	0	0	0	3	0	0	0	0	0	0	0
		Sisyridae	0	0	0	0	0	0	0	0	0	1	0
Butterflies and moths	Lepidoptera	Crambidae	0	1	0	0	0	0	0	1	0	0	0
Midges and flies	Diptera	Ceratopogonidae	8	36	3	0	2	0	0	0	1	0	0
		Culicidae	0	0	0	0	2	0	0	0	0	0	0
		Simuliidae	0	0	0	0	0	12	0	0	0	0	0
		Stratiomyidae	1	0	0	0	0	0	0	0	0	0	0
		Tabanidae	0	0	0	1	0	0	0	0	0	0	0
		Tipulidae	1	1	0	0	0	0	0	0	0	0	0
		Chironominae	5	30	104	39	43	195	53	72	93	63	49
		Tanypodinae	5	2	18	21	41	19	5	15	4	4	14
		Orthocladiinae	3	0	5	0	0	0	2	4	1	0	1
Number of Individuals			205	185	265	223	150	499	473	281	230	179	237

+=Potential new reference site, non-regulatory site

^ =Non-regulatory site

Table 20. Macroinvertebrate abundances collected at each sample site along Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek during Fall 2020.

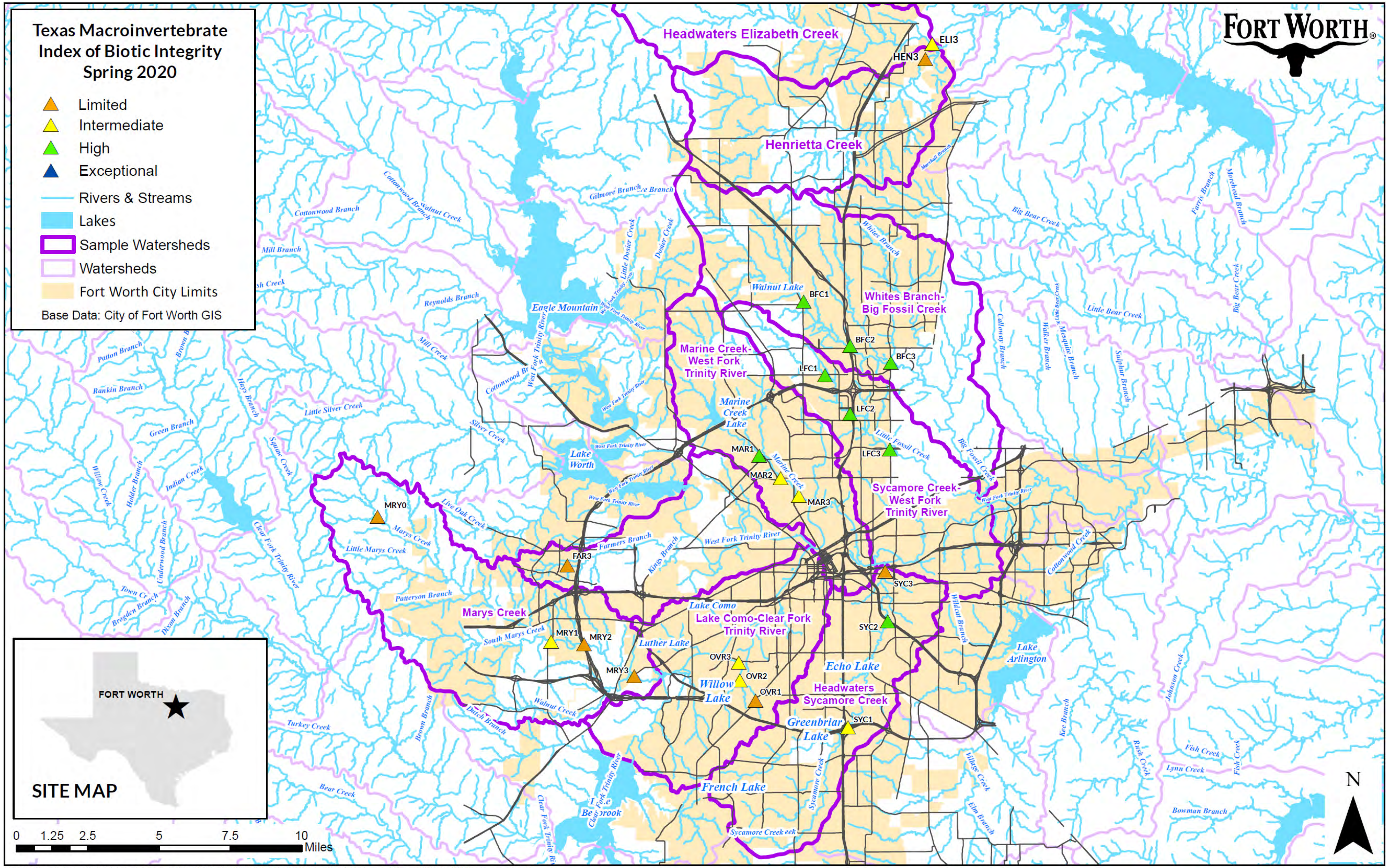
Common Name	Order	Family	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Flatworms	Turbellaria		1	0	0	0	8	1	1	6	6	7	0
Worms		Lumbriculidae	1	1	0	0	0	0	2	0	0	0	0
		Tubificidae	5	6	2	0	0	0	0	0	0	0	0
		Naididae	3	7	0	1	1	4	0	0	0	3	5
Leeches	Hirudinea		2	2	1	1	7	6	1	0	1	0	0
Snails	Gastropoda	Physidae	26	50	9	0	1	0	8	1	1	0	2
		Planorbidae	0	1	0	0	6	0	12	0	0	0	7
		Lymnaeidae	0	0	0	0	0	0	0	0	0	0	1
		Ancylidae	4	5	0	0	1	0	7	1	1	0	1
Clams	Bivalvia	Corbiculidae	0	2	3	0	0	0	1	1	2	4	3
		Sphaeridae	0	0	0	0	0	0	2	0	0	2	0
Crawfish	Decapoda	Cambaridae	0	0	0	0	0	0	0	0	0	0	0
Scuds	Amphipoda	Hyallelidae	6	1	1	3	3	13	26	0	0	2	0
Mayflies	Ephemeroptera	Baetidae	28	37	11	3	118	55	2	26	124	51	1
		Caenidae	5	1	1	1	2	3	19	0	4	5	0
		Heptageniidae	1	0	0	0	0	0	0	0	0	5	7
		Leptophyphidae	0	0	2	0	1	0	0	0	0	2	6
Caddisflies	Trichoptera	Brachycentridae	0	4	1	0	2	0	0	1	0	0	1
		Helicopsychidae	0	0	4	0	0	6	2	2	42	0	0
		Hydropsychidae	0	107	31	5	65	6	1	31	16	8	0
		Hydroptilidae	4	2	0	5	14	50	2	0	1	0	0
		Leptoceridae	0	0	0	0	0	0	0	0	0	2	0
		Philopotamidae	3	11	3	2	52	10	0	34	42	13	7
		Polycentropodidae	0	0	0	0	0	0	0	0	0	0	1
Dragonflies	Anisoptera	Gomphidae	0	0	0	0	0	0	0	0	0	1	0
		Libellulidae	1	1	0	0	0	0	0	1	0	0	0

^ =Non-regulatory site

Table 20. Macroinvertebrate abundances collected at each sample site along Marine Creek, Overton Park Creek, Little Fossil Creek, Henrietta Creek, and Elizabeth Creek during Fall 2020, continued.

Common Name	Order	Family	MAR1	MAR2	MAR3	OVR1	OVR2	OVR3	LFC1	LFC2	LFC3	HEN3^	ELI3^
Damselflies	Zygoptera	Coenagrionidae	27	58	20	2	9	4	22	7	23	4	0
		Calopterygidae	0	0	0	0	0	0	0	0	0	0	0
True water bugs	Hemiptera	Gerridae	4	0	0	0	0	1	0	0	0	0	0
		Hebridae	1	0	0	0	0	0	0	0	0	0	0
		Mesoveliidae	0	0	0	0	0	0	0	0	0	1	0
		Naucoridae	0	0	0	0	0	1	0	0	0	0	0
		Veliidae	2	2	3	0	0	0	10	0	1	3	0
Beetles	Coleoptera	Elmidae	29	43	35	0	0	0	12	4	37	4	0
		Hydrophilidae	0	1	0	0	0	0	2	0	0	0	0
Dobsonflies	Megaloptera	Corydalidae	0	0	0	0	0	0	0	0	0	0	0
		Sisyridae	0	0	0	0	0	0	0	0	0	0	0
Butterflies and moths	Lepidoptera	Crambidae	0	1	1	0	0	0	0	0	2	0	0
Midges and flies	Diptera	Ceratopogonidae	0	0	0	0	1	0	2	1	1	0	1
		Culicidae	0	0	0	0	0	0	0	0	0	0	0
		Simuliidae	0	0	0	0	1	0	0	0	1	0	10
		Stratiomyidae	0	0	0	0	0	0	0	0	1	1	0
		Tabanidae	0	0	0	0	0	0	0	0	0	0	0
		Tipulidae	0	0	0	0	0	0	0	0	0	0	0
		Chironominae	28	69	44	143	466	46	34	72	172	22	106
		Tanypodinae	48	5	0	21	46	18	6	3	6	15	2
		Orthocladiinae	3	3	1	2	3	2	5	1	6	1	12
Number of Individuals			232	420	173	189	807	226	179	192	490	156	173

^ =Non-regulatory site



Amy LaMar | April 2018 | Map Source: X:\07_ENVIRONMENTAL\GIS\WaterQuality\AnnualReport\IBI_RBA Monitoring\2020

Figure 1. TX Macroinvertebrate IBI Aquatic Life Use Ratings, Spring 2020.

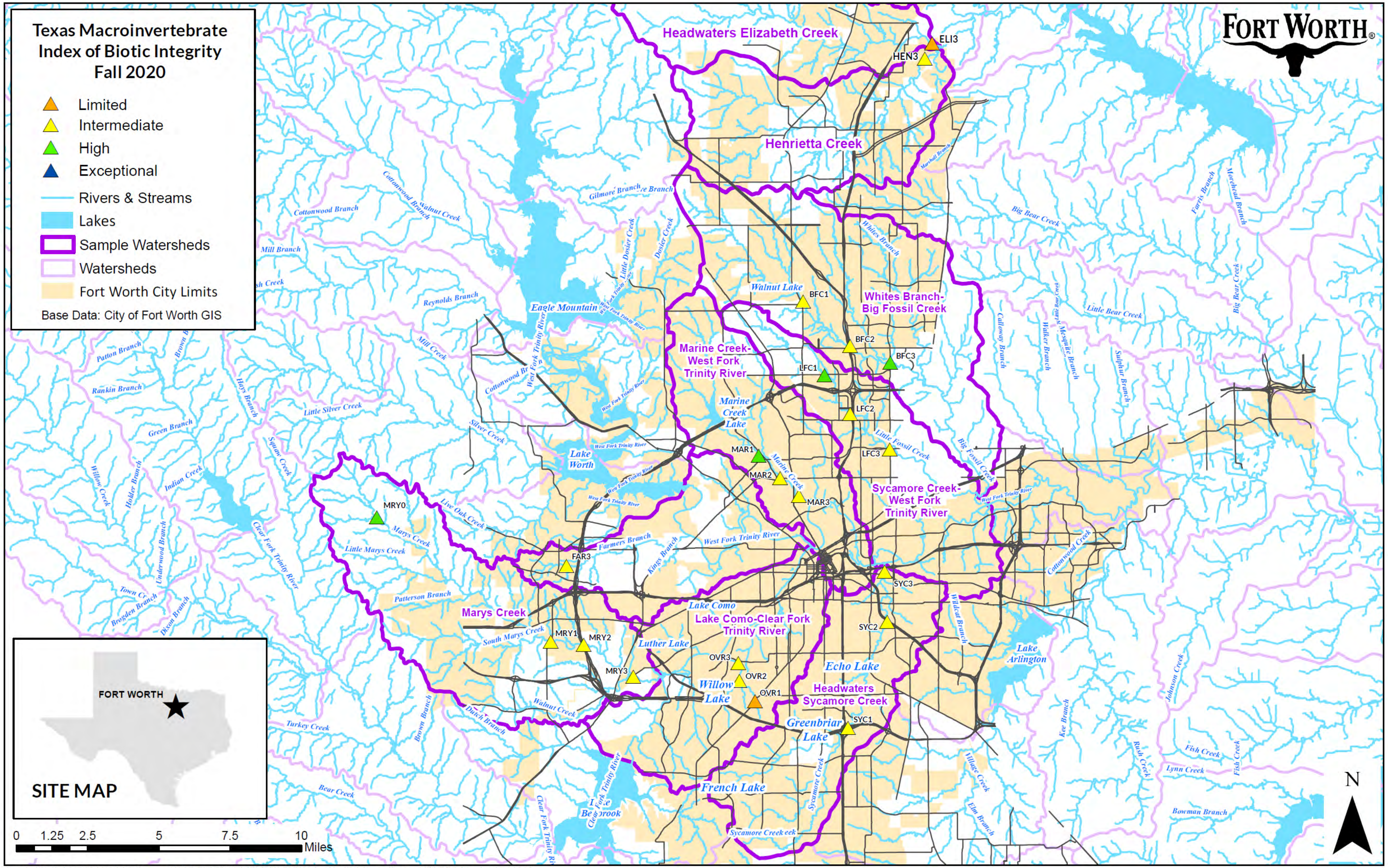


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Figure 2. TX Macroinvertebrate IBI Aquatic Life Use Ratings, Fall 2020.