TAS Environmental

# ACTION REPORT

**Texarkana Water Utilities**
**PO #: xxxxxxxx**

**Incident Location:**
**2321 Line Ferry RD.**
**Texarkana, AR 71854**

**Incident Date: 07/17/18**
**Incident #: XK180107ERM**

**Prepared By:**
**Alan Campbell**
**Response Supervisor**


| | | | |
|---|---|---|---|
| Ft. Worth | San Antonio | Dallas | Austin |
| 817.535.7222 | 210.496.5310 | 972.638.9700 | 512.990.9903 |
| Longview | Texarkana | Bossier City | Little Rock |
| 903.643.7901 | 903.838.2182 | 318.747.2662 | 501.847.7200 |

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## APPENDICES

## 1.0 INTRODUCTION

The following report addresses the observations and response actions performed by TAS Environmental Services L.P. (TAS) regarding a black water release on Tuesday, July 17, 2018. TAS was contacted by MR. John Murphy with Texarkana Water Utilities and requested to respond to the location described as New Haven Golf Course at 2321 Line Ferry Rd. Texarkana, AR.

## 2.0 INCIDENT DESCRIPTION

The initial request was received at approximately 1430 hours on Tuesday, July 17, 2018 requesting a crew to the scene of a black water release which occurred at the above-mentioned location. TAS was requested to obtain photograph documentation and provide emergency response services in regards to the release.

A crew was dispatched to the location for initial response and evaluation of the site. Upon arrival, the supervisor surveyed the immediate area to begin developing a plan of action. A small pond approximately 150 ft x 50 ft and 4 ft deep was found to be contaminated along with the creek leading into the pond.

The TAS crew began evacuating the contaminated water from the pond using an 80 bbl vacuum truck. The contaminated water was loaded and hauled to the TWU wastewater treatment center on South Stateline.

On Wednesday, July 18, 2018 vacuum truck operations continued. A total of 18 loads, approximately 54,000 gallons of contaminated water was hauled from the pond to the wastewater treatment center. Mr. John Murphy with TWU ordered an 8" pump. The pump was setup at the pond and hose ran to the lift station located on Line Ferry Road. Pumping began approximately at 1700 and ceased at 2200.

On Thursday, July 19, 2018 at 0700, pumping operations resume. The water level in the pond was down to mud and at 1100 a soil sample was collected from the inlet side of the pond. A second soil sample was collected on the spill way side of the pond at 1130 as well as a water sample. The bridge and rocks along the south side of the pond were cleaned using a power washer. The rinse water was collected with the vacuum truck and disposed of at the wastewater treatment center. Fresh water was introduced upstream from an open fire hydrant where the creek crossed Line Ferry Rd to flush contaminated water from the creek to the pond where it was then pumped back to the lift station. A 3" pump was setup on the north side of the pone and a second 3" pump on the south side to aerate the water. Operations ceased at 1930.

On Friday, July 20, 2018 aeration and pumping began at 0700. Fresh water continued to flush the creek and contaminated water pumped back to the lift station at Line Ferry Rd. Operations ceased at 1830.

On Saturday and Sunday, July 21 and 22, 2018, fresh water continued to flow down the creek and through the pond. Operations were monitored every three hours.

On Monday, July 23, 2018, a second water sample was collected. A pH and DO field test was conducted by a representative from Ana-Lab. The pH result was 6.67 and the dissolved oxygen content was 5.45 mg/L.

On Wednesday July 25, 2018, the analytical results from the samples taken were received from Ana-Lab Corp. A copy of those results is attached as Appendix B.

## 3.0 WASTE DISPOSAL

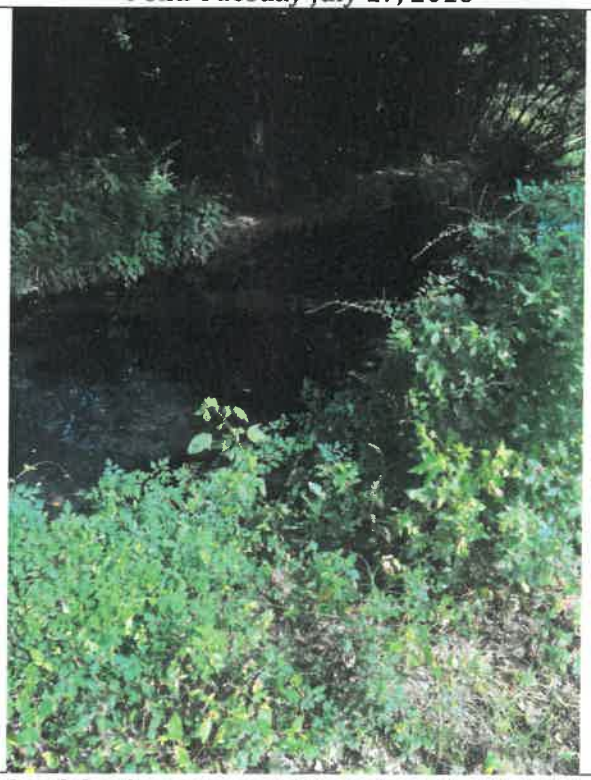
As a result of the above-mentioned response activities, an estimated 54,000 gallons of contaminated water was transported to wastewater treatment on South Stateline via the vacuum truck. An estimated 1.9 million gallons of contaminated water was pumped back through the lift station at Line Ferry Rd.

If you have any questions regarding this report, please contact Mr. Campbell, Response Supervisor at (903) 838-2182, or e-mail at acampbell@taslp.com.

# APPENDIX A

## SITE DIAGRAM & PHOTOGRAPHS

Pond Tuesday July 17, 2018



Creek leading into pond Tuesday July 17, 2018

Pumping operations on Thursday July 19, 2018

Pumping operations on Thursday July 19, 2018

Aerating water Thursday July 19, 2018

Aerating water Thursday July 19, 2018

XK180107ERM

Pond on Monday July 23, 2018

Creek leading into pond Monday July 23, 2018

# APPENDIX B

# ANALYTICAL RESULTS

**Project 837246 = results of samples taken on Thursday, July 19, 2018**

**Project 837242 = results of samples taken on Monday, July 23, 2018**

XK180107ERM

Ana-Lab Corp.
P.O. Box 9000
Kilgore, TX 75663
903/984-0551

LELAP-accredited #02008

# Report

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TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

*Account*
**TAS7-A**

*Project*
**837246**

**This report consists of this Table of Contents and the following pages:**

ANA-LAB CORP. THE COMPLETE SERVICE LAB

Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

Employee Owned Integrity Caring Continual Improvement

# Results

*Printed:* 07/25/2018



| *Account* | *Project* |
|---|---|
| TAS7-A | 837246 |

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

## Results

**1702882** **SAMPLE #3 POND** *Received:* 07/23/2018

Non-Potable Water *Collected by:* Client TAS Environmental *PO:* Default

*Taken:* 07/19/2018 11:30:00

*EPA 200.7 4.4* *Prepared:* 790036 07/25/2018 10:30:00 *Analyzed* 790135 07/25/2018 13:43:00 LPS

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Potassium** | **4.89** | **mg/L** | 0.500 | | **7440-09-7** | 06 |

*EPA 200.7 4.4* *Prepared:* 790036 07/25/2018 10:30:00 *Analyzed* 790150 07/25/2018 14:45:00 LPS

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Phosphorus** | **0.817** | **mg/L** | 0.100 | | **7723-14-0** | 06 |

*EPA 300.0 2.1* *Prepared:* 789881 07/24/2018 09:42:00 *Analyzed* 789881 07/24/2018 09:42:00 AMB

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Nitrate-Nitrogen Total** | **<0.100** | **mg/L** | 0.100 | H | **14797-55-8** | 01 |
| N | **Nitrite-Nitrogen, Total** | **<0.100** | **mg/L** | 0.100 | H | | 01 |

*EPA 350.1 2* *Prepared:* 789822 07/24/2018 11:00:00 *Analyzed* 790157 07/25/2018 15:00:00 RSV

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Ammonia (as N)** | **5.59** | **mg/L** | 0.040 | | | 05 |

*SM 9223 B-2004* *Prepared:* 790040 07/25/2018 10:24:00 *Analyzed* 790040 07/25/2018 10:24:00 MDM

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **MPN, Total Coliform, Colilert-18** | **>2419.6** | **MPN/100mL** | 1.00 | H | | 02 |

*SM 9223 B-2004* *Prepared:* 790041 07/25/2018 10:24:00 *Analyzed* 790041 07/25/2018 10:24:00 MDM

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **MPN, E.coli, Col.-18 - Non-Pot** | **>2419.6** | **MPN/100mL** | 1.00 | H | | 02 |

## Sample Preparation

ANA-LAB CORP. THE COMPLETE SERVICE LAB

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# Results

*Printed:* 07/25/2018



**1702882** **SAMPLE #3 POND** *Received:* 07/23/2018

Default

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *Prepared:* | | *07/24/2018* | *08:12:00* | *Analyzed* | *07/24/2018* | *08:12:00* | *KAT* |
| z | **Bottle pH** | **<2** | **SU** | | | | | 03 | |
| | | *Prepared:* | | *07/24/2018* | *13:42:25* | *Calculated* | *07/24/2018* | *13:42:25* | *CAL* |
| | **Sampling/Transport** | **Verified** | | | | | | | |
| | | *Prepared:* | | *07/24/2018* | *13:42:26* | *Calculated* | *07/24/2018* | *13:42:26* | *CAL* |
| z | **Special Sample Prep** | **Verified** | | | | | | | |
| | | *Prepared:* | *789670* | *07/23/2018* | *00:00:00* | *Analyzed* | *789670* | *07/23/2018* | *00:00:00* | *JPK* |
| | **Cooler Temperature** | **1.1** | **degrees** | | | | | 01 | |
| | *EPA 200.2 2.8* | *Prepared:* | *790036* | *07/25/2018* | *10:30:00* | *Analyzed* | *790036* | *07/25/2018* | *10:30:00* | *TES* |
| N | **Liquid Metals Digestion** | **50/50** | **ml** | | | | | 03 | |
| | *EPA 350.2, Rev. 2.0* | *Prepared:* | *789822* | *07/24/2018* | *11:00:00* | *Analyzed* | *789822* | *07/24/2018* | *11:00:00* | *CRS* |
| N | **Ammonia Distillation** | **50/50** | **ml** | | | | | 04 | |
| | *SM 9223 B-2004* | *Prepared:* | *790037* | *07/24/2018* | *13:18:00* | *Analyzed* | *790037* | *07/24/2018* | *13:18:00* | *MDM* |
| N | **MPN (Colilert-18) Start** | **STARTED** | | | | H | | | 02 | |

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*Printed:* 07/25/2018



# Results

Qualifiers:

H - Sample started outside recommended holding time

We report results on an 'As Received' or wet basis unless marked 'Dry Weight'. Unless otherwise noted, testing was performed at Ana-lab's corporate laboratory that holds the following Federal and State certificates: Texas Department of Health Lead Firm Certificate 2110076, US Department of Agriculture Soil Import Permit S-37592, Texas Commisson on Environmental Quality Drinking Water Laboratory Certificate TX219, Texas Commission on Environmental Quality NELAP T104704201-18, Oklahoma Department of Environmental Quality Drinking Water Certification Lab ID# D9913, EPA Lab Number TX00063, USEPA Approved Perchlorate Testing Lab, Oklahoma Department of Environmental Quality Laboratory Certificate 8125, Arkansas Department of Environmental Quality Certification #03-070-0, Louisiana Department of Environmental Quality Laboratory Certification (NELAP, LELAP) #02008, Louisiana Department of Health and Hospitals Drinking Water (NELAP) # LA030020, US Department of Energy Approved. The Accredited column designates accreditation by N -- NELAC, or z -- not covered under NELAC scope of accreditation.
These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of Ana-Lab Corp. Unless otherwise specified, these test results meet the requirements of NELAC.
RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

**Paul Zhang, Ph.D., Quality Director**

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# Quality Control

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WW

| Account | Project |
|---|---|
| TAS7-A | 837246 |

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

Analytical Set 790040 SM 9223 B-2004

**Standard**

| Parameter | Sample | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|---|
| P. aeruginosa | 790037 | <1.0 | <1.0 | MPN/100mL | | - | 118929470 |
| Standard E. coli | 790037 | >2419.6 | >2419.6 | MPN/100mL | | - | 118929472 |
| Standard K.pneumoniae | 790037 | >2419.6 | >2419.6 | MPN/100mL | | - | 118929471 |

Analytical Set 790041 SM 9223 B-2004

**Standard**

| Parameter | Sample | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|---|
| P. aeruginosa | 790037 | <1.0 | <1.0 | MPN/100mL | | - | 118929477 |
| Standard E. coli | 790037 | >2419.6 | >2419.6 | MPN/100mL | | - | 118929479 |
| Standard K.pneumoniae | 790037 | <1.0 | <1.0 | MPN/100mL | | - | 118929478 |

Analytical Set 789924 EPA 350.1 2

**Blank**

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 789822 | ND | 0.00356 | 0.020 | mg/L | 118927010 |

**LCS Dup**

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia (as N) | 789822 | 1.91 | 1.92 | 2.00 | 90.0 - 110 | 95.5 | 96.0 | mg/L | 0.522 | 20.0 |

Analytical Set 790157 EPA 350.1 2

**CCV**

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 2.00 | 2.00 | mg/L | 100 | 90.0 - 110 | 118931559 |
| | 2.01 | 2.00 | mg/L | 100 | 90.0 - 110 | 118931569 |
| | 2.01 | 2.00 | mg/L | 100 | 90.0 - 110 | 118931579 |
| | 1.97 | 2.00 | mg/L | 98.5 | 90.0 - 110 | 118931586 |

**Duplicate**

| Parameter | Sample | Result | Unknown | Unit | RPD | Limit% |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 1701396 | 0.224 | 0.224 | mg/L | 0 | 20.0 |

**ICV**

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 2.07 | 2.00 | mg/L | 104 | 90.0 - 110 | 118931558 |

**Mat. Spike**

| Parameter | Sample | Spike | Unknown | Known | Units | Recovery % | Limits % | File |
|---|---|---|---|---|---|---|---|---|
| Ammonia (as N) | 1701396 | 2.17 | 0.224 | 2.00 | mg/L | 97.3 | 80.0 - 120 | 118931565 |

Analytical Set 789881 EPA 300.0 2.1

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# Quality Control

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### AWRL/MRL C

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 0.109 | 0.113 | mg/L | 96.5 | 75.0 - 125 | 118926420 |
| Nitrite-Nitrogen, Total | 0.135 | 0.152 | mg/L | 88.8 | 75.0 - 125 | 118926420 |

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 789881 | ND | 0.00185 | 0.020 | mg/L | 118926421 |
| Nitrite-Nitrogen, Total | 789881 | ND | 0.00717 | 0.0152 | mg/L | 118926421 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 2.21 | 2.26 | mg/L | 97.8 | 90.0 - 110 | 118926417 |
| | 2.19 | 2.26 | mg/L | 96.9 | 90.0 - 110 | 118926430 |
| Nitrite-Nitrogen, Total | 3.07 | 3.04 | mg/L | 101 | 90.0 - 110 | 118926417 |
| | 3.09 | 3.04 | mg/L | 102 | 90.0 - 110 | 118926430 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 789881 | 1.12 | 1.12 | 1.13 | 88.0 - 110 | 99.1 | 99.1 | mg/L | 0 | 20.0 |
| Nitrite-Nitrogen, Total | 789881 | 1.56 | 1.55 | 1.52 | 88.0 - 110 | 103 | 102 | mg/L | 0.643 | 20.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 1702904 | 56.5 | 57.0 | 45.9 | 11.3 | 80.0 - 120 | 93.8 | 98.2 | mg/L | 4.61 | 20.0 |
| Nitrite-Nitrogen, Total | 1702904 | 13.6 | 13.6 | ND | 15.2 | 80.0 - 120 | 89.5 | 89.5 | mg/L | 0 | 20.0 |

## Analytical Set 790135

EPA 200.7 4.4

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Potassium | 790036 | 0.0939 | 0.0765 | 0.500 | mg/L | 118931087 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 22.8 | 25.0 | mg/L | 91.2 | 90.0 - 110 | 118931086 |
| | 23.2 | 25.0 | mg/L | 92.8 | 90.0 - 110 | 118931095 |
| | 22.9 | 25.0 | mg/L | 91.6 | 90.0 - 110 | 118931096 |
| | 23.6 | 25.0 | mg/L | 94.4 | 90.0 - 110 | 118931109 |

### Dir. SPKD

| Parameter | Sample | DSPK | DSPKD | UNK | Known | Limits% | DSPK% | DSPKD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 127 | 128 | 24.4 | 100 | 75.0 - 125 | 103 | 104 | mg/L | 0.784 | 25.0 |

### Direct SPK

| Parameter | Sample | DSPK | UNK | Known | Limits% | DSPK% | Units | |
|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 127 | 24.4 | 100 | 75.0 - 125 | 103 | mg/L | 25.0 |

### ICL

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 49.7 | 50.0 | mg/L | 99.4 | 95.0 - 105 | 118931069 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 23.0 | 25.0 | mg/L | 92.0 | 90.0 - 110 | 118931073 |

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# Quality Control

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### LCS Dup

| Parameter | PrepSet | LCS | LCSD | | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 790036 | 4.79 | 4.66 | | 5.00 | 85.0 - 115 | 95.8 | 93.2 | mg/L | 2.75 | 25.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 35.4 | 35.6 | 29.2 | 5.00 | 75.0 - 125 | 124 | 128 * | mg/L | 3.17 | 25.0 |

## Analytical Set 790150

EPA 200.7 4.4

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Phosphorus | 790036 | 0.0181 | 0.0105 | 0.100 | mg/L | 118931301 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 10.0 | 10.0 | mg/L | 100 | 90.0 - 110 | 118931294 |
| | 9.92 | 10.0 | mg/L | 99.2 | 90.0 - 110 | 118931302 |
| | 9.68 | 10.0 | mg/L | 96.8 | 90.0 - 110 | 118931310 |

### ICL

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 25.3 | 25.0 | mg/L | 101 | 95.0 - 105 | 118931292 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 10.0 | 10.0 | mg/L | 100 | 90.0 - 110 | 118931293 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus | 790036 | 4.40 | 4.30 | | 4.00 | 85.0 - 115 | 110 | 108 | mg/L | 2.30 | 25.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus | 1702608 | 4.25 | 4.25 | 0.0161 | 4.00 | 75.0 - 125 | 106 | 106 | mg/L | 0 | 25.0 |

* Out RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) * 100%

Recover% is Recovery Percent: result / known * 100%

Blank - Method Blank; CCV - Continuing Calibration Verification; AWRL/MRL C - Ambient Water Reporting Limit/Minimum Reporting Limit Check Std; ICV - Initial Calibration Verification

837246 CoC Print Group 001 of 001

**Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663**

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com LELAP-accredited #02008

# Chain of Custody

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TAS7 -A-4

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Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

Phone 903/930-7639
Fax / -

*Sewage Spill - WW 2 Day TAT*

| Accredited | Test | Name | Method |
|---|---|---|---|

## RUSH 2 Day

Pu/ch

*Matrix: Non-Potable Water*

Client TAS7

*Sampler Printed Name* *Sampler Affiliation* *Sampler Signature*

| | | | | | |
|---|---|---|---|---|---|
| | 1 | On Site Testing | | | |
| N | Short Hold | pH | pH (Onsite) | | SM 4500-H+ B-2011 (0.0104 days) |

pH (Onsite) Quality Control EQ: _____

Collected By _____ Date _____ Time _____ Analyzed By _____ Date _____ Time _____

Results _____ Units _____ Temp. _____ C Duplicate _____ Units _____ Temp. _____ C

Calibration: _____/4.00 _____/7.00 _____/10.00

QC: _____/6.00 Pre _____/8.00 Pre _____ Post

| | | | | | |
|---|---|---|---|---|---|
| N | Short Hold | DO | Dissolved Oxygen Onsite | | SM 4500-O G-2011 (0.0104 days) |

#1 1702876

#2 877

#3 878

7/23/18

Dissolved Oxygen Onsite Quality Control EQ: _____

Collected By _____ Date _____ Time _____ Analyzed By _____ Date _____ Time _____

Results _____ Units _____ Temp. _____ C Duplicate _____ Units _____ Temp. _____ C

Dissolved Oxygen QC: _____ %Sat.

1702882

| | | | | | |
|---|---|---|---|---|---|
| | 7 | $Na_2S_2O_3$ (0.008%) Polystyrene-100 mL Sterilized | | | |
| N | Short Hold | MPNW | MPN, E.coli, Col.-18 - Non-Pot | | SM 9223 B-2004 (0.347 days) |
| | 1 | HNO3 to pH <2 Polyethylene 500 mL For Metals | | | |
| N | | 301L | Liquid Metals Digestion | | EPA 200.2 2.8 (180 days) |
| N | | *KI | Potassium | | EPA 200.7 4.4 CAS:7440-09-7 (180 days) |
| N | | *PI | Phosphorus | | EPA 200.7 4.4 CAS:7723-14-0 (180 days) |
| | 1 | H2SO4 to pH <2 250 ml Polyethylene | | | |
| N | | NHaN | Ammonia (as N) | | EPA 350.1 2 (28.0 days) |
| N | | TKN | Total Kjeldahl Nitrogen | | EPA 351.2 2 CAS:7727-37-9 (28.0 days) |
| | 1 | Polyethylene Quart (White) | | | |
| N | Short Hold | IN2L | Nitrite-Nitrogen, Total | | EPA 300.0 2.1 (2.00 days) |
| N | Short Hold | IN3L | Nitrate-Nitrogen Total | | EPA 300.0 2.1 CAS:14797-55-8 (2.00 days) |

| Ana-Lab # | Sample ID | Bottles | Date | Time | Notes |
|---|---|---|---|---|---|

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

Corporate: 2600 Dudley Road Kilgore TX 75662

NELAP-accredited #T104704201

837246 CoC Print Group 001 of 001

Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com LELAP-accredited #02008

# Chain of Custody

07/23/2018 Page 2 of 2

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

**TAS7 -A-4**

**107**

Phone 903/930-7639
Fax

*Sewage Spill - WW 2 Day TAT*

| | | | | | |
|---|---|---|---|---|---|
| 1702882 | | | | | |
| | | | | | |
| | | | | | |

*Ambient Conditions/Comments*

| Date | Time | Relinquished | Received |
|---|---|---|---|
| 7/23/18 | 1120 | Printed Name ALAN CAMPBELL Affiliation TAS ENV. | Printed Name David Jackson Affiliation Ana-Lab 7/23/18 11:20 |
| | | Signature Alan Campbell | Signature David Jackson |
| 7/23/18 | 15:08 | Printed Name David Jackson Affiliation Ana-Lab | Printed Name John Kulak Affiliation Ana-Lab 7/23/18 15:08 |
| | | Signature David Jackson | Signature |
| | | Printed Name Affiliation | Printed Name Affiliation |
| | | Signature | Signature |
| | | Printed Name Affiliation | Printed Name Affiliation |
| | | Signature | Signature |

**Sample Recieved on Ice?** Yes No **Method of Shipment:** UPS Bus Fedex Lone Star Hand Delivered Other

**Cooler/Sample Secure?** Yes No **If Shipped: Tracking Number & Temp - See Attached**

The accredited column designates accreditation by A - A2LA, N - NELAC, or z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the welcome page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #000323.

**Comments**

1.1°J

6205 ☐
6092 ☒ 0.0
6093 ☐

Ana-Lab Corp.
P.O. Box 9000
Kilgore, TX 75663
903/984-0551

LELAP-accredited #02008

# Report

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TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

*Account*
**TAS7-A**

*Project*
**837242**

**This report consists of this Table of Contents and the following pages:**

ANA-LAB CORP. THE COMPLETE SERVICE LAB

Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663

Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com

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# Results

*Printed:* 07/25/2018



| *Account* | *Project* |
|---|---|
| TAS7-A | 837242 |

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

## Results

**1702875** **Sewage Spill - WW** *Received:* 07/23/2018

Non-Potable Water *Collected by:* DGJ Ana-Lab *PO:* Default

*Taken:* 07/23/2018 11:31:00

*EPA 200.7 4.4* *Prepared:* 790036 07/25/2018 10:30:00 *Analyzed* 790135 07/25/2018 13:40:00 LPS

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Potassium** | **3.54** | **mg/L** | 0.500 | | **7440-09-7** | 08 |

*EPA 200.7 4.4* *Prepared:* 790036 07/25/2018 10:30:00 *Analyzed* 790150 07/25/2018 14:41:00 LPS

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Phosphorus** | **0.167** | **mg/L** | 0.100 | | **7723-14-0** | 08 |

*EPA 300.0 2.1* *Prepared:* 789881 07/24/2018 09:17:00 *Analyzed* 789881 07/24/2018 09:17:00 AMB

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Nitrate-Nitrogen Total** | **0.195** | **mg/L** | 0.100 | | **14797-55-8** | 01 |
| N | **Nitrite-Nitrogen, Total** | **<0.100** | **mg/L** | 0.100 | | | 01 |

*EPA 350.1 2* *Prepared:* 789822 07/24/2018 11:00:00 *Analyzed* 790105 07/25/2018 00:00:00 RSV

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Ammonia (as N)** | **0.732** | **mg/L** | 0.020 | | | 07 |

*EPA 351.2 2* *Prepared:* 789802 07/24/2018 09:30:00 *Analyzed* 790109 07/25/2018 11:55:00 CDB

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Total Kjeldahl Nitrogen** | **0.602** | **mg/L** | 0.050 | | **7727-37-9** | 06 |

*SM 4500-H+ B-2011* *Prepared:* 789742 07/23/2018 11:38:00 *Analyzed* 789742 07/23/2018 11:38:00 DGJ

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **pH (Onsite)** | **6.7** | **SU** | | | | |

*SM 4500-O G-2011* *Prepared:* 789741 07/23/2018 11:38:00 *Analyzed* 789741 07/23/2018 11:38:00 DGJ

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **Dissolved Oxygen Onsite** | **5.4** | **mg/L** | 1 | | | |

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# Results

*Printed:* 07/25/2018 

**1702875** **Sewage Spill - WW** *Received:* 07/23/2018

Non-Potable Water *Collected by:* DGJ Ana-Lab *PO:* Default

*Taken:* 07/23/2018 11:31:00

*SM 9223 B-2004* *Prepared:* 789817 07/24/2018 11:40:00 *Analyzed* 789817 07/24/2018 11:40:00 MDM

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **MPN, Total Coliform, Colilert-18** | **>2419.6** | **MPN/10 0mL** | 1.00 | | | 04 |

*SM 9223 B-2004* *Prepared:* 789818 07/24/2018 11:40:00 *Analyzed* 789818 07/24/2018 11:40:00 MDM

| | Parameter | Results | Units | RL | Flag | CAS | Bottle |
|---|---|---|---|---|---|---|---|
| N | **MPN, E.coli, Col.-18 - Non-Pot** | **1413.6** | **MPN/10 0mL** | 1.00 | | | 04 |

## Sample Preparation

**1702875** **Sewage Spill - WW** *Received:* 07/23/2018

Default

*Prepared:* 789670 07/23/2018 00:00:00 *Analyzed* 789670 07/23/2018 00:00:00 JPK

| | | | | | |
|---|---|---|---|---|---|
| z | **Bottle pH** | **<2** | **SU** | | 02 |
| z | **Bottle pH** | **<2** | **SU** | | 03 |
| | **Cooler Temperature** | **1.1** | **degrees** | | 01 |
| | **Cooler Temperature** | **1.1** | **degrees** | | 02 |
| | **Cooler Temperature** | **1.1** | **degrees** | | 03 |
| | **Cooler Temperature** | **1.1** | **degrees** | | 04 |
| | **Cooler Temperature** | **1.1** | **degrees** | | 05 |

*EPA 200.2 2.8* *Prepared:* 790036 07/25/2018 10:30:00 *Analyzed* 790036 07/25/2018 10:30:00 TES

| | | | | | |
|---|---|---|---|---|---|
| N | **Liquid Metals Digestion** | **50/50** | **ml** | | 02 |

*EPA 350.2, Rev. 2.0* *Prepared:* 789822 07/24/2018 11:00:00 *Analyzed* 789822 07/24/2018 11:00:00 CRS

| | | | | | |
|---|---|---|---|---|---|
| N | **Ammonia Distillation** | **50/50** | **ml** | | 03 |

*EPA 351.2, Rev 2.0* *Prepared:* 789802 07/24/2018 09:30:00 *Analyzed* 789802 07/24/2018 09:30:00 CRS

| | | | | | |
|---|---|---|---|---|---|
| N | **TKN Block Digestion** | **20/20** | **ml** | | 03 |

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# Results

*Printed:* 07/25/2018



| | | | |
|---|---|---|---|
| **1702875** | **Sewage Spill - WW** | *Received:* | 07/23/2018 |
| | | Default | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *SM 9223 B-2004* | *Prepared:* | *789814* | *07/23/2018* | *16:00:00* | *Analyzed* | *789814* | *07/23/2018* | *16:00:00* | *MDM* |

| | | | |
|---|---|---|---|
| *N* | **MPN (Colilert-18) Start** | **STARTED** | 04 |

Qualifiers:

We report results on an 'As Received' or wet basis unless marked 'Dry Weight'. Unless otherwise noted, testing was performed at Ana-lab's corporate laboratory that holds the following Federal and State certificates: Texas Department of Health Lead Firm Certificate 2110076, US Department of Agriculture Soil Import Permit S-37592, Texas Commisson on Environmental Quality Drinking Water Laboratory Certificate TX219, Texas Commission on Environmental Quality NELAP T104704201-18, Oklahoma Department of Environmental Quality Drinking Water Certification Lab ID# D9913, EPA Lab Number TX00063, USEPA Approved Perchlorate Testing Lab, Oklahoma Department of Environmental Quality Laboratory Certificate 8125, Arkansas Department of Environmental Quality Certification #03-070-0, Louisiana Department of Environmental Quality Laboratory Certification (NELAP, LELAP) #02008, Louisiana Department of Health and Hospitals Drinking Water (NELAP) # LA030020, US Department of Energy Approved. The Accredited column designates accreditation by N -- NELAC, or z -- not covered under NELAC scope of accreditation.

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of Ana-Lab Corp. Unless otherwise specified, these test results meet the requirements of NELAC.

RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

**Paul Zhang, Ph.D., Quality Director**

Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663
Phone 903/984-0551 FAX 903/984-5914 e-Mail corp@ana-lab.com LELAP-accredited #02008

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# Quality Control

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WW

| Account | Project |
|---|---|
| TAS7-A | 837242 |

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

## Analytical Set 789817 — SM 9223 B-2004

### Micro Dup

| Parameter | Sample | Type | Result | Unknown | Unit | Range | Criterion |
|---|---|---|---|---|---|---|---|
| MPN, Total Coliform, Colilert-18 | 1702864 | Duplicate | 88.4 | 76.7 | MPN/100mL | 0.0617 | 0.7825 |
| | 1702887 | Duplicate | >2419.6 | >2419.6 | MPN/100mL | | 0.7825 |

### Standard

| Parameter | Sample | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|---|
| P. aeruginosa | 789814 | <1.0 | <1.0 | MPN/100mL | | - | 118925376 |
| Standard E. coli | 789814 | >2419.6 | >2419.6 | MPN/100mL | | - | 118925378 |
| Standard K.pneumoniae | 789814 | >2419.6 | >2419.6 | MPN/100mL | | - | 118925377 |

## Analytical Set 789818 — SM 9223 B-2004

### Micro Dup

| Parameter | Sample | Type | Result | Unknown | Unit | Range | Criterion |
|---|---|---|---|---|---|---|---|
| MPN, E.coli, Col.-18 - Non-Pot | 1702864 | Duplicate | 1.0 | 1.0 | MPN/100mL | 0 | 0.7825 |
| | 1702887 | Duplicate | 41.4 | 73.3 | MPN/100mL | 0.248 | 0.7825 |

### Standard

| Parameter | Sample | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|---|
| P. aeruginosa | 789814 | <1.0 | <1.0 | MPN/100mL | | - | 118925387 |
| Standard E. coli | 789814 | >2419.6 | >2419.6 | MPN/100mL | | - | 118925389 |
| Standard K.pneumoniae | 789814 | <1.0 | <1.0 | MPN/100mL | | - | 118925388 |

## Analytical Set 790105 — EPA 350.1 2

### AWRL/MRL C

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 0.024 | 0.020 | mg/L | 120 | 75.0 - 125 | 118930595 |

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 789822 | ND | 0.00356 | 0.020 | mg/L | 118930579 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 1.90 | 2.00 | mg/L | 95.0 | 90.0 - 110 | 118930571 |
| | 2.06 | 2.00 | mg/L | 103 | 90.0 - 110 | 118930578 |
| | 2.07 | 2.00 | mg/L | 104 | 90.0 - 110 | 118930588 |
| | 1.91 | 2.00 | mg/L | 95.5 | 90.0 - 110 | 118930592 |
| | 2.08 | 2.00 | mg/L | 104 | 90.0 - 110 | 118930596 |
| | 1.88 | 2.00 | mg/L | 94.0 | 90.0 - 110 | 118930607 |
| | 2.04 | 2.00 | mg/L | 102 | 90.0 - 110 | 118930618 |
| | 2.08 | 2.00 | mg/L | 104 | 90.0 - 110 | 118930625 |
| | 2.04 | 2.00 | mg/L | 102 | 90.0 - 110 | 118930632 |

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# Quality Control

Printed 07/25/2018 

### Duplicate

| Parameter | Sample | Result | Unknown | Unit | RPD | Limit% |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 1701396 | 0.380 | 0.387 | mg/L | 1.83 | 20.0 |
| | 1702833 | 0.308 | 0.293 | mg/L | 4.99 | 20.0 |
| | 1702834 | 0.147 | 0.159 | mg/L | 7.84 | 20.0 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 2.19 | 2.00 | mg/L | 110 | 90.0 - 110 | 118930570 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia (as N) | 789822 | 1.96 | 1.96 | 2.00 | 90.0 - 110 | 98.0 | 98.0 | mg/L | 0 | 20.0 |

### Mat. Spike

| Parameter | Sample | Spike | Unknown | Known | Units | Recovery % | Limits % | File |
|---|---|---|---|---|---|---|---|---|
| Ammonia (as N) | 1701396 | 2.39 | 0.387 | 2.00 | mg/L | 100 | 80.0 - 120 | 118930577 |
| | 1702833 | 2.29 | 0.293 | 2.00 | mg/L | 99.8 | 80.0 - 120 | 118930584 |
| | 1702834 | 2.07 | 0.159 | 2.00 | mg/L | 95.6 | 80.0 - 120 | 118930587 |

## Analytical Set 790109 — EPA 351.2 2

### AWRL/MRL C

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 0.050 | 0.050 | mg/L | 100 | 75.0 - 125 | 118930726 |

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 789802 | ND | 0.0191 | 0.050 | mg/L | 118930725 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 5.02 | 5.00 | mg/L | 100 | 90.0 - 110 | 118930724 |
| | 5.09 | 5.00 | mg/L | 102 | 90.0 - 110 | 118930734 |
| | 4.97 | 5.00 | mg/L | 99.4 | 90.0 - 110 | 118930744 |
| | 5.08 | 5.00 | mg/L | 102 | 90.0 - 110 | 118930749 |
| | 5.04 | 5.00 | mg/L | 101 | 90.0 - 110 | 118930750 |

### Duplicate

| Parameter | Sample | Result | Unknown | Unit | RPD | Limit% |
|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 1702904 | 4.82 | 4.78 | mg/L | 0.833 | 20.0 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 5.08 | 5.00 | mg/L | 102 | 90.0 - 110 | 118930723 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 789802 | 4.66 | 5.03 | 5.00 | 90.0 - 110 | 93.2 | 101 | mg/L | 7.64 | 20.0 |

### Mat. Spike

| Parameter | Sample | Spike | Unknown | Known | Units | Recovery % | Limits % | File | |
|---|---|---|---|---|---|---|---|---|---|
| Total Kjeldahl Nitrogen | 1702904 | 5.86 | 4.78 | 5.00 | mg/L | 21.6 | 80.0 - 120 | 118930731 | * |

## Analytical Set 789741 — SM 4500-O G-2011

### Duplicate

| Parameter | Sample | Result | Unknown | Unit | RPD | Limit% |
|---|---|---|---|---|---|---|
| Dissolved Oxygen Onsite | 1702875 | 5.3 | 5.4 | mg/L | 1.9 | 20 |

## Analytical Set 789742 — SM 4500-H+ B-2011

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| pH (Onsite) | 5.96 | 6.00 | SU | 99.3 | 90 - 110 | |
| | 7.91 | 8.00 | SU | 98.9 | 90 - 110 | |

### Duplicate

| Parameter | Sample | Result | Unknown | Unit | RPD | Limit% |
|---|---|---|---|---|---|---|
| pH (Onsite) | 1702875 | 6.6 | 6.7 | SU | 1.5 | 20 |

### Standard

| Parameter | Sample | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|---|
| pH (Onsite) | 789742 | 6.99 | 7.00 | SU | 99.9 | 90 - 110 | |
| | 789742 | 4.01 | 4.00 | SU | 100.3 | 90 - 110 | |
| | 789742 | 9.94 | 10.00 | SU | 99.4 | 90 - 110 | |

## Analytical Set 789881 — EPA 300.0 2.1

### AWRL/MRL C

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 0.109 | 0.113 | mg/L | 96.5 | 75.0 - 125 | 118926420 |
| Nitrite-Nitrogen, Total | 0.135 | 0.152 | mg/L | 88.8 | 75.0 - 125 | 118926420 |

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 789881 | ND | 0.00185 | 0.020 | mg/L | 118926421 |
| Nitrite-Nitrogen, Total | 789881 | ND | 0.00717 | 0.0152 | mg/L | 118926421 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 2.21 | 2.26 | mg/L | 97.8 | 90.0 - 110 | 118926417 |
| | 2.19 | 2.26 | mg/L | 96.9 | 90.0 - 110 | 118926430 |
| Nitrite-Nitrogen, Total | 3.07 | 3.04 | mg/L | 101 | 90.0 - 110 | 118926417 |
| | 3.09 | 3.04 | mg/L | 102 | 90.0 - 110 | 118926430 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 789881 | 1.12 | 1.12 | 1.13 | 88.0 - 110 | 99.1 | 99.1 | mg/L | 0 | 20.0 |
| Nitrite-Nitrogen, Total | 789881 | 1.56 | 1.55 | 1.52 | 88.0 - 110 | 103 | 102 | mg/L | 0.643 | 20.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate-Nitrogen Total | 1702904 | 56.5 | 57.0 | 45.9 | 11.3 | 80.0 - 120 | 93.8 | 98.2 | mg/L | 4.61 | 20.0 |
| Nitrite-Nitrogen, Total | 1702904 | 13.6 | 13.6 | ND | 15.2 | 80.0 - 120 | 89.5 | 89.5 | mg/L | 0 | 20.0 |

## Analytical Set 790135 — EPA 200.7 4.4

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Potassium | 790036 | 0.0939 | 0.0765 | 0.500 | mg/L | 118931087 |

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# Quality Control

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### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 22.8 | 25.0 | mg/L | 91.2 | 90.0 - 110 | 118931086 |
| | 23.2 | 25.0 | mg/L | 92.8 | 90.0 - 110 | 118931095 |
| | 22.9 | 25.0 | mg/L | 91.6 | 90.0 - 110 | 118931096 |
| | 23.6 | 25.0 | mg/L | 94.4 | 90.0 - 110 | 118931109 |

### Dir. SPKD

| Parameter | Sample | DSPK | DSPKD | UNK | Known | Limits% | DSPK% | DSPKD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 127 | 128 | 24.4 | 100 | 75.0 - 125 | 103 | 104 | mg/L | 0.784 | 25.0 |

### Direct SPK

| Parameter | Sample | DSPK | UNK | Known | Limits% | DSPK% | Units | |
|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 127 | 24.4 | 100 | 75.0 - 125 | 103 | mg/L | 25.0 |

### ICL

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 49.7 | 50.0 | mg/L | 99.4 | 95.0 - 105 | 118931069 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Potassium | 23.0 | 25.0 | mg/L | 92.0 | 90.0 - 110 | 118931073 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 790036 | 4.79 | 4.66 | 5.00 | 85.0 - 115 | 95.8 | 93.2 | mg/L | 2.75 | 25.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 1702608 | 35.4 | 35.6 | 29.2 | 5.00 | 75.0 - 125 | 124 | 128 * | mg/L | 3.17 | 25.0 |

## Analytical Set 790150 — EPA 200.7 4.4

### Blank

| Parameter | PrepSet | Reading | MDL | MQL | Units | File |
|---|---|---|---|---|---|---|
| Phosphorus | 790036 | 0.0181 | 0.0105 | 0.100 | mg/L | 118931301 |

### CCV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 10.0 | 10.0 | mg/L | 100 | 90.0 - 110 | 118931294 |
| | 9.92 | 10.0 | mg/L | 99.2 | 90.0 - 110 | 118931302 |
| | 9.68 | 10.0 | mg/L | 96.8 | 90.0 - 110 | 118931310 |

### ICL

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 25.3 | 25.0 | mg/L | 101 | 95.0 - 105 | 118931292 |

### ICV

| Parameter | Reading | Known | Units | Recover% | Limits% | File |
|---|---|---|---|---|---|---|
| Phosphorus | 10.0 | 10.0 | mg/L | 100 | 90.0 - 110 | 118931293 |

### LCS Dup

| Parameter | PrepSet | LCS | LCSD | Known | Limits% | LCS% | LCSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus | 790036 | 4.40 | 4.30 | 4.00 | 85.0 - 115 | 110 | 108 | mg/L | 2.30 | 25.0 |

### MSD

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|

Ana-Lab Corp. P.O. Box 9000 Kilgore, TX 75663
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# Quality Control

Printed 07/25/2018



**MSD**

| Parameter | Sample | MS | MSD | UNK | Known | Limits | MS% | MSD% | Units | RPD | Limit% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus | 1702608 | 4.25 | 4.25 | 0.0161 | 4.00 | 75.0 - 125 | 106 | 106 | mg/L | 0 | 25.0 |

* Out RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) * 100% Recover% is Recovery Percent: result / known * 100%

CCV - Continuing Calibration Verification; Blank - Method Blank; AWRL/MRL C - Ambient Water Reporting Limit/Minimum Reporting Limit Check Std; ICV - Initial Calibration Verification

837242 CoC Print Group 001 of 001

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# Chain of Custody

TAS7 -A-4

102

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Lab Number 1702875

PO Number Mandatory

Phone 903/930-7639

Fax / -

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

*Sewage Spill - WW*

Rush

*Matrix: Non-Potable Water*

Sample Collection Start

Date: 7-23-18 Time: 11:31

Sampler Printed Name: David Jaksa

Sampler Affiliation: Ana-Lab

Sampler Signature: David Jaksa

1 On Site Testing

| | | | | | |
|---|---|---|---|---|---|
| N | Short Hold | DO | Dissolved Oxygen Onsite | SM 4500-O G-2011 (0.0104 days) | |

Dissolved Oxygen Onsite Quality Control

Collected By DGJ Date 7-23-18 Time 11:35 Analyzed By DGJ Date 7-23-18 Time 11:38

Results 5.45 Units mg/L Temp. 30.3 °C Duplicate 5.33 Units mg/L Temp. 30.1 °C

Dissolved Oxygen QC: ____ %Sat.

| | | | | | |
|---|---|---|---|---|---|
| N | Short Hold | pH | pH (Onsite) | SM 4500-H+ B-2011 (0.0104 days) | |

pH (Onsite) Quality Control

Collected By DGJ Date 7-23-18 Time 11:35 Analyzed By DGJ Date 7-23-18 Time 11:38

Results 6.67 Units SU Temp. 30.4 °C Duplicate 6.59 Units SU Temp. 30.3 °C

QC: /6.00 Post /8.00 Post

2 Na2S2O3 (0.008%) Polystyrene-100 mL Sterilized

| | | | | | |
|---|---|---|---|---|---|
| N | Short Hold | MPNW | MPN, E.coli, Col.-18 - Non-Pot | SM 9223 B-2004 (0.347 days) | |

1 HNO3 to pH <2 Polyethylene 500 mL for Metals

| | | | | | |
|---|---|---|---|---|---|
| N | | *KI | Potassium | EPA 200.7 4.4 CAS:7440-09-7 (180 days) | |

837242 CoC Print Group 001 of 001

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Employee Owned Integrity Caring Continual Improvement

# Chain of Custody

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TAS7 -A-4

102

Report To

TAS Environmental
Alan Campbell
6409 W 7th St
Texarkana, TX 75501

Phone 903/930-7639
Fax / -

Mandatory

Rush

| | | | | |
|---|---|---|---|---|
| N | | *PI | Phosphorus | EPA 200.7 4.4 CAS:7723-14-0 (180 days) |
| N | | 301L | Liquid Metals Digestion | EPA 200.2 2.8 (180 days) |
| | 1 | H2SO4 to pH <2 250 ml Polyethylene | | |
| N | | NHaN | Ammonia (as N) | EPA 350.1 2 (28.0 days) |
| N | | TKN | Total Kjeldahl Nitrogen | EPA 351.2 2 CAS:7727-37-9 (28.0 days) |
| | 1 | Polyethylene Quart (White) | | |
| N | Short Hold | IN2L | Nitrite-Nitrogen, Total | EPA 300.0 2.1 (2.00 days) |
| N | Short Hold | IN3L | Nitrate-Nitrogen Total | EPA 300.0 2.1 CAS:14797-55-8 (2.00 days) |

Ambient Conditions/Comments

| Date | Time | Relinquished | Received |
|---|---|---|---|
| 7/23/18 | 15:08 | Printed Name David Jackson Affiliation Ana-Lab | Printed Name Affiliation |
| | | Signature David Jackson | Signature |
| | | Printed Name Affiliation | Printed Name Affiliation |
| | | Signature | Signature |
| | | Printed Name Affiliation | Printed Name Affiliation |
| | | Signature | Signature |
| | | Printed Name Affiliation | Printed Name Affiliation |
| | | Signature | Signature |

**Sample Received on Ice?** Yes No **Method of Shipment:** UPS Bus FedEx Lone Star Hand Delivered Other

**Cooler/Sample Secure?** Yes No **If Shipped: Tracking Number & Temp - See Attached**

*The accredited column designates accreditation by A - A2LA, N - NELAC, or z - not listed under scope of accreditation. Unless otherwise specified, ANA-LAB shall provide these ordered services pursuant to our Standard Terms & Conditions Agreement (available for download from the website page at <http://www.ana-lab.com>). Ana-Lab personnel collect samples as specified by Ana-Lab SOP #000323.*

**Comments**

1.1 C

6205
6092
6093