

August 3, 2015

Matt Love Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2015 SECOND QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Love:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested that monitoring of the FDS be carried out by the facility and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain system.

This report includes general FDS background information and summarizes FDS system operation during the second quarter of 2015. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall and into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur.

#### 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc., 2013), the concrete retaining wall along the southern edge of the process area was constructed in the late 1980s to keep floodwaters in Stewart Creek out of the operating portion of the facility, and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plant. Areas of seepage along the Stewart Creek side of the retaining wall were observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected behind the flood wall and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment.

Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) included in Attachment A.

#### 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the second quarter of 2015 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and record flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.



Golder Associates Inc. 820 S. Main Street, Suite 100 St. Charles, MO 63301 USA Tel: (636) 724-9191 Fax: (636) 724-9323 www.golder.com

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- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35 and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the second quarter 2015 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the second quarter of 2015 other than described below:

- MW-33 inaccessible for water level measurements at the time of the Second Quarter 2015 inspection as there was a frac tank placed on top of this location.
- Because of the heavy rainfall and associated flooding, it was not possible to pump the French drain for several days in May and June. Measurements from an onsite rain gauge indicate 10.125 inches of rain fell on the facility between May 6th and May 30th, 6.25 inches of which fell on May 29th and May 30th. As a result of this heavy rainfall, the stormwater collected from the former operating area completely filled the stormwater retention pond causing untreated stormwater to back up into the conveyance pipe from the former operating area. This resulted in standing water approximately two feet deep in the general wastewater treatment building and flooding in the surrounding area, including the area of the FDS. Electricity was shut off to the area for safety concerns during this time.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

#### 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday other than periods when the FDS was not in operation as described above. Table 1 summarizes the recorded flows of the FDS relative and the off-Site daily precipitation based on data recorded at the Frisco, Texas weather station located in Frisco, Texas (data obtained from http://www.friscoweather.com/daily.htm).

As shown in Table 1, the maximum total flow and maximum total precipitation for the quarter occurs concurrently in the month of May.

In addition to the data obtained from the Frisco, Texas weather station (http://www.friscoweather.com/daily.htm), measurements from an onsite rain gauge indicate 10.125 inches of rain fell on the facility between May 6th and May 30th, 6.25 inches of which fell on May 29th and May 30th (as described in the Act of God Letter submitted to TCEQ on June 4, 2015). As noted above, because of the heavy rainfall and associated flooding, it was not possible to pump the French drain for several days in May and June.

#### **3.2 Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-34, MW-35 and MW-46 were measured and recorded during the second quarter of 2015. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data. Water levels were not measured at MW-33 because



the well was covered by a water storage tank at the time of the inspection. In general, water levels were higher during the second quarter of 2015, which is likely a result of the heavy rainfall in the area in May and June 2015 (discussed below).

#### 3.3 Floodwall Seepage

At the time of the wall inspection on June 12, 2015 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition with the exception of one area (described below). Some minor cracks were observed, but were repaired with cement filler by Exide personnel at the time of the Golder inspection. No major cracks were observed.

As described in the letter dated June 12, 2015, RE: Follow-up Written Report Submittal for Telephone Notification Report Number 20152072 (June 12th Letter), an apparent seepage from the floodwall (approximately 40 feet upstream from a stormwater conveyance pipe crossover on Stewart Creek) was observed on June 5, 2015. The seepage close to the flood wall appeared clear and turned white when it came into contact with the creek. As explained in the June 12th letter, an aboveground storage tank (AST) containing a 50% sodium hydroxide solution was not leaking prior to the area being flooded (see description of heavy rainfall in May and June as described above), but was observed to have a small leak when the standing stormwater was removed. Exide suspects that the 50% sodium hydroxide solution may have leaked into the standing stormwater, some of which is suspected to have infiltrated the joints in the concrete wall while this area of the facility was flooded and potentially been released to the banks of Stewart Creek due to water pressure from the standing water on the facility side of the flood wall. As indicated above, the French drain was not being pumped when this portion of the facility was flooded.

#### 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on June 12, 2015. As such, no samples of white crystalline material were collected or analyzed.

#### 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the French Drain system during second quarter 2015. Analytical results from these samples are included in Table 3 and Attachment B.

Exide collected samples where the flood wall seepage ran into Stewart Creek on June 5<sup>th</sup>, 2015. Those results were previously provided in the June 12<sup>th</sup> Letter. Golder and the City of Frisco inspected the area of the apparent seepage described above on June 8<sup>th</sup> and June 9<sup>th</sup>, 2015. The City of Frisco collected samples of surface water and a solid material from Stewart Creek at the area of the discharge as well as downstream. The City of Frisco results are included in Attachment C. TCEQ performed an inspection of the same areas on June 9, 2015. TCEQ also collected solid material and surface water samples but the TCEQ results have not been provided to Exide and Golder for review. The results from samples collected by the City of Frisco are included in Attachment C.

#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the second quarter of 2015 described above, the FDS appears to be preventing discharges to Stewart Creek with the exception of the period of time when the system was out of operation during extremely heavy rainfall and there was subsequent flooding in the area of the FDS. This heavy rainfall and flooding are considered an Act of God, as described in the letter from Exide to TCEQ dated June 4, 2015, RE: Notification of Act of God, Exide Technologies, Agreed Order Effective April 27, 2015, TCEQ Docket No. 2013-2207-IHW-E, Registration No. 30516. Following the flooding and observation of the apparent seepage, Exide performed several actions to mitigate and stop the release as detailed in the June 12<sup>th</sup> Letter.



#### 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Just with

Anne Fauth - Boyd

Justin C. White, P.E. (Missouri) Senior Project Engineer

Anne M. Faeth-Boyd, R.G., P.E. (Missouri) Senior Engineer

~ L Boot

Frederick M. Booth, P.G. (Missouri) Principal and Program Leader

CC:

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Attachment A: French Drain Monitoring Plan

Attachment B: French Drain Water Laboratory Analytical Results

Attachment C: Laboratory Analytical Results provided by the City of Frisco

JCW/AMF/FMB



#### Table 1 French Drain Daily Flow Volumes

	Apr-15		May-15			Jun-15		
Total Total Flow (gal) Precip (in)			Total Flow (gal)		Total Precip (in)	Total Flow (gal) Prec (in		Total Precip (in)
30,393		7.11	31,227		16.23	28,150		2.53
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
4/1/2015	174	0.09	5/1/2015	2,321	0	6/1/2015	0	0
4/2/2015	302	0.06	5/2/2015	0	0	6/2/2015	0	0
4/3/2015	0	0	5/3/2015	0	0	6/3/2015	0	0
4/4/2015	0	0	5/4/2015	7,132	0	6/4/2015	0	0
4/5/2015	0	0.47	5/5/2015	367	0.03	6/5/2015	0	0
4/6/2015	1,905	0.18	5/6/2015	802	0.61	6/6/2015	0	0
4/7/2015	224	0	5/7/2015	591	0.27	6/7/2015	0	0
4/8/2015	174	0	5/8/2015	3,618	1.22	6/8/2015	0	0
4/9/2015	124	0.01	5/9/2015	733	0.37	6/9/2015	4,553	0
4/10/2015	0	0	5/10/2015	0	1.29	6/10/2015	0	0
4/11/2015	0	0	5/11/2015	0	0.58	6/11/2015	0	0
4/12/2015	0	0	5/12/2015	4,688	0.01	6/12/2015	0	0
4/13/2015	3,684	1.44	5/13/2015	784	0.23	6/13/2015	0	0.02
4/14/2015	1,051	0.38	5/14/2015	1,930	0.41	6/14/2015	0	0.04
4/15/2015	530	0	5/15/2015	794	0.01	6/15/2015	6,905	0.07
4/16/2015	400	0	5/16/2015	0	0	6/16/2015	3,129	0.07
4/17/2015	249	0.13	5/17/2015	0	0.71	6/17/2015	1,176	0.96
4/18/2015	0	1.15	5/18/2015	7,467	0.1	6/18/2015	1,800	0.78
4/19/2015	0	0.59	5/19/2015	0	0	6/19/2015	884	0
4/20/2015	5,300	0	5/20/2015	0	0.56	6/20/2015	0	0
4/21/2015	1,819	0.11	5/21/2015	0	0.26	6/21/2015	0	0.12
4/22/2015	127	0.11	5/22/2015	0	0.37	6/22/2015	3,221	0.1
4/23/2015	841	0.54	5/23/2015	0	0.56	6/23/2015	1,064	0
4/24/2015	1,116	0.8	5/24/2015	0	1.99	6/24/2015	220	0
4/25/2015	0	0.68	5/25/2015	0	0.46	6/25/2015	210	0
4/26/2015	0	0	5/26/2015	0	0.27	6/26/2015	209	0.04
4/27/2015	5,087	0.14	5/27/2015	0	0.03	6/27/2015	2,722	0.27
4/28/2015	2,712	0.22	5/28/2015	0	0.05	6/28/2015	0	0
4/29/2015	2,525	0.01	5/29/2015	0	2.92	6/29/2015	1,784	0
4/30/2015	2,049	0	5/30/2015	0	2.18	6/30/2015	273	0.06
			5/31/2015		0.74			

#### Notes:

Precipitation data obtained from www.friscoweather.com/daily Daily flow volumes provided by Exide. Prepared by: EG 7/20/15 Checked by: JS 7/29/15 Reviewed by: AMF/FMB 7/30/15

# Table 2Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-26	631.93	5-15	3/11/2013	9.98	621.95
(Groundwater)			4/5/2013	9.52	622.41
			4/29/2013	9.21	622.72
			1/21/2014	5.80	626.13
			7/29/2014	5.79	626.14
			9/23/2014	8.9	623.03
			6/12/2015	5.32	626.61
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43
(Groundwater)			4/5/2013	6.96	626.55
			4/29/2013	6.56	626.95
			1/21/2014	6.62	626.89
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
MW-31	636.71	8-23	5/13/2013	10.58	626.13
(Groundwater)			1/21/2014	10.87	625.84
· · · ·			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
(Perched)			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
, i			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48

Notes:

1. bgs - below ground surface.

2. msl - above mean sea level.

3. btoc - below top of casing.

Prepared by: EG 7/20/15 Checked by: JS 7/29/15 Reviewed by: AMF/FMB 7/30/15

	Samp FD042	o <b>le ID</b> 115-02	Samp FD042	o <b>le ID</b> 115-01
	Date Co	ollected	Date Co	ollected
	4/21/20	15 15:00	4/21/20	15 15:00
Metals				
Parameter:	Result	Units	Result	Units
Antimony	0.088	mg/L	NA	mg/L
Arsenic	0.012	mg/L	NA	mg/L
Cadmium	0.0097	mg/L	NA	mg/L
Lead	0.207	mg/L	NA	mg/L
Selenium	0.0208	mg/L	NA	mg/L
Tin	ND	mg/L	NA	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Sulfate	NA	mg/L	1,010	mg/L
Total Dissolved Solids	NA	mg/L	1,780	mg/L

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

Prepared by: EG 07/20/15 Checked by: AMF 07/28/15 Reviewed by: AMF/FMB 07/30/15 ATTACHMENT A FRENCH DRAIN MONITORING PLAN



**G PLAN** 

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# EXIDE FRISCO RECYCLING FACILITY

### French Drain Monitoring Plan

Submitted To: Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

Submitted By: Golder Associates Inc. 820 S. Main Street, Suite 100 St. Charles, MO 63301 USA

**Distribution:** Exide Technologies Golder Associates Inc.

June 2014

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### **List of Attachments**

Attachment 1	Wall Seepage Project (W&M French Drain Construction Report)
Attachment 2	French Drain Inspection Form

#### **1.0 INTRODUCTION**

Golder Associates Inc. (Golder) has prepared this Monitoring Plan for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5<sup>th</sup> Street in Frisco, Texas. The Monitoring Plan has been prepared in response to the Texas Commission on Environmental Quality comments to the Affected Property Assessment Report (APAR) dated October 8<sup>th</sup>, 2013 which requested that monitoring of the FDS be carried out by the facility. This Monitoring Plan includes general FDS background information and the rationale and methodology that will be used while monitoring the FDS.

#### 1.1 Site History

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc., 2013), the concrete retaining wall along the southern edge of the process area was constructed in the late 1980s to keep floodwaters in Stewart Creek out of the operating portion of the facility, and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plant. Areas of seepage along the Stewart Creek side of the retaining wall were observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected behind the flood wall and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment.

#### **1.2 FDS Construction**

FDS construction began in August 2012 and was completed in late November 2012 (W&M Environmental Group, Inc., 2013). The following work was completed:

- Installation of a 4-inch PVC French drain at the base of the retaining wall and a second 4inch PVC French drain at the base of the retaining wall footing. Each French drain was surrounded by crushed stone and filter fabric.
- The exposed north face of the retaining wall and footing were power washed and treated with an asphaltic waterproofing sealer.
- Installation of a 40 ml HDPE liner on top of the asphaltic waterproofing sealer.
- Installation of a new collection sump for the FDS and another for surface water runoff.
- Installation of chemically resistant waterstops in the French Drain area.

The preceding was an abridged description of construction works completed. The French Drain Construction Report contains additional information, including FDS as-built drawings, and is included as Attachment 1.





#### 2.0 OPERATION INFORMATION

#### 2.1 Purpose

The FDS is designed to intercept perched water from the former operations area, convey the water to the collection manhole, and pump the water to the wastewater treatment system for treatment and proper disposal. Associated asphaltic waterproofing sealants, waterstops and HDPE liners are designed to impede the movement of perched water through the retaining wall prior to collection by the FDS.

#### 2.2 System Specifications

- Pump
  - Flotec Submersible Cast Iron Pump (FPSC3350A)
  - 1/3 horsepower
  - 1/2-inch solids cap
  - 2,400 gallons per hour at 10 feet of lift
  - 1-1/2 inch NPT discharge pipe
  - 10 amp draw at full load
  - float set at 10 inches below French Drain inlet pipe invert
- Flow Meter
  - FloMec TM Series 2-inch
- Average Daily Flow Range
  - flow typically between 50 and 300 gallons per day based on preliminary measurements and is dependent upon precipitation

#### 2.3 Inspections

The following items should be inspected at the prescribed frequency unless observations warrant modifications to the inspection schedule.

#### 2.3.1 Weekday Inspection/Maintenance Items

- Inspect meter to confirm that it is working
- Record flow rate and totalizer reading

#### 2.3.2 Weekly Inspection/Maintenance Items

- Keep the FDS collection sump and pump inlet free of materials that can reduce flow
- The sump outlet should be free draining under normal conditions
- Test the pump float for proper operation

#### 2.3.3 Quarterly Inspection/Maintenance Items

- Measure and record water levels in MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35 and MW-46.
- Inspect FDS sump for sedimentation.





- Inspect Flood Wall Waterstop and Joint Fillers waterstops and joint fillers should be in good condition.
- Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.



#### 3.0 RECORDKEEPING

Surface inlets, junction boxes, manholes, or at the outlet should be monitored for indications of blockages after heavy rains or in the spring when groundwater levels tend to be higher.

A record of inspection forms for site activities will be maintained on site. All water monitoring and system inspection activities will be recorded on an inspection form with the date and time. The identities and affiliations of persons performing the tasks will be included on the inspection forms.

The inspection forms to be used for this project is included as Attachment 2. The inspection forms will be completed by a Site representative on a daily, weekly and quarterly basis as noted above.





## **ATTACHMENT 1**





May 10, 2013

Ms. Vanessa Coleman, Site Manager Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

RE: Wall Seepage Project Retaining Wall at Stewart Creek Exide Frisco Recycling Facility Frisco, Texas W&M Project No. 112.052

Dear Ms. Coleman:

W&M Environmental Group, Inc. (W&M) conducted an evaluation of water seepage along the concrete retaining wall located on the south boundary of the main operating portion of Exide's Frisco Recycling Center located in Frisco, Texas. A Site Location Plan depicting the principal operating areas of the Exide facility are depicted in **Figure 1**. Based upon this evaluation, recommendations were provided to improve drainage behind the wall and prevent further seepage.

This report briefly summarized the nature of the seepage, the design of the improvements, and their construction in 2012.

#### BACKGROUND AND PROJECT SCOPE

A concrete retaining wall, or barrier wall, was constructed along the southern edge of the main Exide plant and adjacent to Stewart Creek in the late 1980s. The location of the barrier wall is shown on **Figure 2**. The wall was designed to retain and collect storm water and other water generated from the facility operating areas, where it is pumped into a storm water detention basin. The facility has a permit to treat the water and discharge treated water to the privately-owned treatment works (POTW), as well as a permit to treat the water and discharge treated water to Stewart Creek. Currently, the facility is discharging treated water to the POTW.

Areas of water seepage have been observed along the concrete retaining wall between the main plant and Stewart Creek over time. The area of the wall where seepage has been observed is between the Slag Treatment Building and the Battery Receiving Building. The seepage appears to occur principally at construction or expansion joints, and in some areas is more pronounced than others. In the past, a significant area of seepage was observed adjacent to a concrete sediment pit near the western end of the wall. Seepage in this area was attributed to a leak from the concrete sediment pit, and the pit was plugged and abandoned. Plugging and abandonment of the pit significantly reduced seepage in this area. Additionally, Exide completed repairs and sealed the exterior face of the wall in a number of locations. Ms. Vanessa Coleman May 10, 2013 Page 2

However, seepage continued in some areas and has resulted in spalling and deterioration of the exterior wall face, and localized areas of wet soil and/or small areas of standing water at the exterior base of the wall.

Representatives from the Texas Commission on Environmental Quality (TCEQ) collected soil and water samples during a Site inspection in May 2011 and determined that seepage from the retaining wall may be discharging water containing lead into the soil adjoining Stewart Creek. W&M visited the facility and reviewed plans provided by Exide, and noted that the retaining wall and concrete pavement was designed to convey runoff and other plant water through shallow drainage swales in the concrete pavement, where it is directed to the (now closed) sediment pit. In some areas, the surface of the concrete pavement was deteriorated, cracked or broken, allowing storm water and wash water to potentially infiltrate behind the wall.

W&M reviewed available drawings and plans, and met with facility staff to discuss relevant issues associated with the observed seepage. A subsurface investigation was completed consisting of soil borings and groundwater observation wells behind the wall to document the levels of static groundwater in relation to the elevations of observed seepage. W&M concluded that source(s) of artificial recharge were resulting in saturated fill soils directly behind the retaining wall, including storm water and wash water runoff from operating areas that infiltrates through cracks, joints and areas of deteriorated concrete; and/or leaks from subsurface drains or sumps located within the plant. The layout of the wall and the locations of W&M's observation wells are depicted in **Figure 2**.

W&M recommended that Exide implement the following repairs and upgrades to drainage in the vicinity of the wall:

- 1. Install a French drain system behind the retaining wall to collect and convey water from the saturated fill away from the wall to a sump or pit, where it can be collected and pumped into the Site's storm water treatment system.
- 2. The drain should consist of 4-inch diameter perforated pipe surrounded by pervious stone, one at the wall stem and a second at the base of the wall. The pipe and stone should be encased within a porous filter fabric to prevent clayey soils and fines from clogging the drain.
- 3. The interior face of the retaining wall should be exposed and cleaned, and lined with a heavy duty waterproofing membrane to prevent infiltrating water from reaching the wall, resulting in possible seepage.
- 4. The concrete paving in areas behind the wall that had deteriorated should be repaired or replaced.

**Figures 3 and 4** contain the wall area layout with the proposed design, including the location of the proposed footing drains, location of new drainage sump and manhole, and areas of concrete to be replaced.

#### IMPLEMENTATION OF WALL DRAINAGE AND CONCRETE IMPROVEMENTS

As part of project design, a test section behind the wall was excavated in September 2011 to observe soil and water conditions and the condition of the inside face of the retaining wall. Photographs from the test section were provided to the contractor to assist with the bidding process.

In January 2012, the contract was awarded to FCS Construction of Frisco, Texas and their subcontractor, Green Scaping, Inc. A Commercial Building Permit Application and a Grading Permit Application were

Ms. Vanessa Coleman May 10, 2013 Page 3

submitted to the City in early 2012, and Commercial Building Permit B12-0977 was issued on April 30, 2012. However, due to scheduling commitments of the contractor once the authorization was received from the City, work did not begin until August 2012.

The principal tasks completed included the following:

- Removal of approximately 8,200 square feet of 6-inch thick concrete along approximately 430 feet of the barrier wall and up to the edges of adjoining structures (building walls, footers, pipe supports).
- Remove the former filled sediment pit at the west end of the project.
- Provide temporary support for power poles and pipe bridge supports during excavation activities.
- Excavation of a trench for the underdrain installation to a depth from 2.5 feet to 4 feet.
- Stockpiling and covering of excavated soil on polyethylene sheeting pending characterization and off-Site disposal.
- Transport and disposal of soils based upon manifests and waste approvals received by Exide.
- Installation of a 4-inch PVC underdrain adjacent to the retaining wall footing and surrounded by crushed stone as shown on the drawings. Where the footing steps down, a second drain was installed at the base of the stem of the retaining wall. The drain and stone were surrounded by porous filter fabric.
- The exposed interior (north) face of the retaining was cleaned by hand of dirt, and power washed, and then the vertical face and the adjoining 2 feet along the top of the footing were treated with an asphaltic waterproofing sealer.
- A 40 ml HDPE liner was placed on top of the asphaltic waterproofing sealer and across the footing. The liner was affixed to the vertical wall face in conjunction with the concrete waterstop fasteners.
- Two new collection sumps were constructed at the west end of the wall, one for the new underdrain system, and a second for surface runoff.
- Replacement of the removed concrete, including installation of chemical resistant waterstops.

#### CONSTRUCTION

Work was initiated on August 20, 2012 and was completed in late November 2012. All work was performed in Level C personal protective equipment.

Delays were encountered during the conduct of the project for various reasons, principally after heavy rains which saturated the subgrade and prevented construction equipment from moving about. Extreme care was taken to control surface water and divert it to the existing collection point at the west end of the project and minimize any further infiltration in exposed areas after concrete removal.

The project was completed in four segments to allow for competent concrete working surfaces to remain while other areas were being removed for drain installation.

- The first 160-foot section was completed during weeks 1 through 3
- A second section of 115 feet in length was completed during weeks 4 through 9.
- The third section, 90 feet adjacent to an active acid tank, was completed during week 10.

• The final 60-foot section and installation of the new sumps and manhole were completed during weeks 11 and 12.

A representative of W&M was present on-site during all critical stages of the work, including drain installation, wall cleaning, asphaltic membrane and liner application and final manhole placement. Daily and weekly status reports were prepared and submitted to Exide to document the work progress and any issues that had arisen. **Figure 5** contains an overview of the progress made during each week of the project. Key photographs taken at various stages are provided in **Attachment A**.

Prior to the initiation of construction, observation wells installed as part of the engineering assessment (designated OW-1, OW-2, OW-3A, OW-3B and OW-4) were plugged and abandoned by a Texas licensed water well driller. Copies of the State of Texas Well Plugging Reports are provided in **Attachment B.** 

During certain periods of excavation a representative of Pastor, Behling & Wheeler, LLC (PBW) was onsite to recover samples of soil from the excavation sidewalls and base in accordance with a sampling regimen agreed with the US EPA. Those sampling results were not provided to W&M and are not included herein.

#### SOIL CHARACTERIZATION and MANAGEMENT

Concrete removed from the drain area was broken into manageable sections and pressure washed at Exide's truck wash pit located adjacent to the work area. The concrete was then placed in an area designated by Exide and managed with other debris generated by the facility.

Excavated soil from the trench was stockpiled on polyethylene and covered each night with polyethylene, and sampled at a frequency of 1 sample per 50 cubic yards for waste characterization purposes. The stockpile waste characterizations samples, designated SP-01 through SP-07, were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals by EPA Method 6020/7470A, pH by Method 9045, and Total Petroleum Hydrocarbons (TPH) by Texas Method TX1005. Copies of the laboratory analytical reports for the stockpile samples are provided in **Attachment C.** 

Based upon the waste characterization results, the material was disposed off-Site under manifest to a hazardous or non-hazardous waste landfill. Approximately 258 cubic yards was manifested to Waste management's DFW Landfill in Lewisville, Texas (Permit No. 1025-B) as a Class 2 waste. Approximately 55 cubic yards was determined to be a characteristic waste based upon TCLP data, and was manifested to Chemical Waste Management's hazardous waste disposal facility in Sulphur, Louisiana (EPA ID No. LA0000147272). Manifests for the disposal of all soils from the drain excavation are provided in **Attachment D**.

#### **POST-CONSTRUCTION OBSERVATIONS**

W&M visited the wall project on three occasions since the drain was completed to observe the condition of the wall. On each occasion, the entire perimeter of the wall was walked and observed for evidence of ongoing seepage. No evidence of recent seepage has been observed, and the drain and sumps appear to be functioning as designed.

This report was prepared for the sole use of Exide Technologies by employing generally accepted methods and customary practices of the engineering profession. W&M appreciates the opportunity to be

Ms. Vanessa Coleman May 10, 2013 Page 5

of service to you on this project. If you have any questions or need additional information, please contact Frank Clark, P.E. at 972-509-9611.

Very truly yours, W&M ENVIRONMENTAL GROUP, INC.

Frank WClark

Frank W. Clark, P.E., P.G. Senior Consultant

tutte

Michael Whitehead Senior Reviewer

Figures, Tables, Attachments













PHOTOGRAPHIC LOG

ATTACHMENT A



Photo 1: View of area of seepage along exterior face of retaining wall; note staining of caulking and cracks in concrete wall footing.



Photo 2: Area of moist soils near area of seep in wall.



Attachment A Photographic Log Retaining Wall Project Frisco, Texas

5/1/2013

W&M Project No.: 112.052



Photo 3: Pre-repair—deteriorated concrete pavement and standing water along retaining wall.



Photo 4: Deteriorated concrete and drainage swale that conveys water to sediment pit.





Photo 5: Breaking of concrete in first section, east end of project area..



Photo 6: Pressure washing of concrete prior to removal and disposal.





Photo 7: Exposed soil and back of retaining wall footing.



Photo 8: Trench at wall footing prior to installation of drain.





Photo 9: Applying liquid asphaltic membrane to wall and top of footing.



Photo 10: Installing filter fabric for footing drain.





Photo 11: Re-bar installed on flex base awaiting concrete.



Photo 12: Finishing new concrete paved surface and swale.





Photo 13: Broken concrete from second section .



Photo 14: Exposed footing at step-down section.





Photo 15: Exposed wall and footing near truck wash.



Photo 16: Applying liquid asphaltic membrane to wall stem and footer.





Photo 17: Heat weld of HDPE liner against wall.



Photo 18: Installed liner prior to drain pipe and anchoring to wall.





Photo 19: Detail of water stops.



Photo 20: Second section prior to placement of steel.




Photo 21: Water stop detail at corner.



Photo 22: Excavating third section of drain.





Photo 23: Exposed wall and drain trench prior to membrane and pipe.



Photo 24: Support for power pole near trench, west end of project.





Photo 25: View of stem drain and footing drain installation prior to backfilling.



Photo 26: Stockpiled excavated soil prior to off-site disposal





Photo 27: Finished concrete near acid tank.



Photo 28: Former sump area, infilled with concrete.





Photo 29: Applying liquid asphaltic membrane at far west end of project.



Photo 30: Installation of sump for surface drainage





Photo 31: Sump and underdrain manhole after backfilling



Photo 32: Finishing concrete surfacing at far west end of project.



#### WATER WELL PLUGGING REPORTS

ATTACHMENT B

	STATE OF TEXAS PLUGGING REPORT for Tracking #79663									
Owner:	EXIDE "	TECHNOLOGIES	Owner Well #:	OW-01,02,03B						
Address:	7471 SC FRISCO	DUTH 5TH ) , TX 75034	Grid #:	18-50-8						
Well Location:	7471 SC FRISCO	DUTH 5TH ) , TX 75034	Latitude:	33° 08' 29" N						
Well County:	Collin		Longitude:	096° 49' 41" W						
			GPS Brand Used:	GARMIN						
Well Type:	Monitor									
		HISTORICAL DATA (	ON WELL TO BE PLUGGED							
Original Well D	riller:	DARRIN S. STARK SR								
Driller's License of Original Well	e Number I Driller:	54891								
Date Well Drille	ed:	6/10/2011								
Well Report Tra Number:	acking	258277								
Diameter of Bo	rehole:	7 inches								
Total Depth of	Borehole:	5 feet								
Date Well Plug	ged:	1/20/2012								
Person Actually Performing Plue Operation:	y gging	DARRIN S. STARK SR.								
License Numbe Plugging Opera	er of ator:	54891								
Plugging Metho	od:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.								
Plugging Varia	nce #:	No Data								
Casing Left Da	ta:	1st Interval: <b>No Data</b> 2nd Interval: <b>No Data</b> 3rd Interval: <b>No Data</b>								
Cement/Bentonite Plugs Placed in Well:		1st Interval: From 5 ft to 2 ft; Sack(s)/type of cement used: 1-BENTONITE 2nd Interval: From 2 ft to 0 ft; Sack(s)/type of cement used: 1-CEMENT 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data								
Certification Da	ata:	The plug installer certified that under the plug installer's direct are true and correct. The plug will result in the log(s) being re	the plug installer plugged this well supervision) and that each and all installer understood that failure to sturned for completion and resubmit	(or the well was plugged of the statements herein complete the required items tal.						

	JOSHUA, TX 76058
Plug Installer License Number:	54891
Licensed Plug Installer Signature:	DARRIN S. STARK SR.
Registered Plug Installer Apprentice Signature:	DERRICK DAMERON
Apprentice Registration Number:	57146
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #79663) on your written request.

Texas Department of Licensing & Regulation P.O. Box 12157 Austin, TX 78711 (512) 463-7880

	STATE OF TEXAS PLUGGING REPORT for Tracking #79664								
Owner:	EXIDE T	ECHNOLOGIES	Owner Well #:	OW-04					
Address:	7471 SC FRISCO	OUTH 5TH , TX 75034	Grid #:	18-50-8					
Well Location:	7471 SC FRISCO	DUTH 5TH , TX 75034	Latitude:	33° 08' 29" N					
Well County:	Collin		Longitude:	096° 49' 41'' W					
			GPS Brand Used:	GARMIN					
Well Type:									
		HISTORICAL DATA ON W	VELL TO BE PLUGGED						
Original Well Dr	iller:	DARRIN S. STARK SR							
Driller's License of Original Well	Number Driller:	54891							
Date Well Drille	d:	6/10/2011							
Well Report Tra Number:	cking	258279							
Diameter of Bor	ehole:	7 inches							
Total Depth of E	Borehole:	8 feet							
Date Well Plugg	jed:	1/20/2012							
Person Actually Performing Plug Operation:	ging	DARRIN S. STARK SR.							
License Numbe Plugging Opera	r of tor:	54891							
Plugging Metho	d:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.							
Plugging Varian	ce #:	No Data							
Casing Left Data	a:	1st Interval: <b>No Data</b> 2nd Interval: <b>No Data</b> 3rd Interval: <b>No Data</b>							
Cement/Bentonite Plugs Placed in Well:		1st Interval: From 8 ft to 2 ft; Sack(s)/type of cement used: 1-BENTONITE 2nd Interval: From 2 ft to 0 ft; Sack(s)/type of cement used: 1-CEMENT 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data							
Certification Dat	ta:	The plug installer certified that the under the plug installer's direct sup are true and correct. The plug inst will result in the log(s) being return	plug installer plugged this well ( ervision) and that each and all aller understood that failure to c ed for completion and resubmit	for the well was plugged of the statements herein complete the required items tal.					

Company Information: RIOMAR ENVIRONMENTAL DRILLING 9213 MONTANA STREET

	JOSHUA , TX 76058
Plug Installer License Number:	54891
Licensed Plug Installer Signature:	DARRIN S. STARK SR.
Registered Plug Installer Apprentice Signature:	DERRICK DAMERON
Apprentice Registration Number:	57146
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #79664) on your written request.

Texas Department of Licensing & Regulation P.O. Box 12157 Austin, TX 78711 (512) 463-7880 - I

description of the second s							
STATE OF TEXAS PLUGGING REPORT for Tracking #79665							
Owner:	EXIDE	TECHNOLOGIES	Owner Well #:	OW-03A			
Address:	7471 SC FRISCO	DUTH 5TH 0 , TX 75034	Grid #:	18-50-8			
Well Location:	7471 SC FRISCO	DUTH 5TH D , TX 75034	Latitude:	33° 08' 29" N			
Well County:	Collin		Longitude:	096° 49' 41" W			
			GPS Brand Used:	GARMIN			
Well Type:	Monitor		/ W	а — такала жана жана ала жана така такат, така, та			
<u> </u>		HISTORICAL DATA ON	WELL TO BE PLUGGED				
Original Well D	riller:	DARRIN S. STARK SR					
Driller's License of Original Wel	e Number I Driller:	54891					
Date Well Drille	ed:	6/10/2011					
Well Report Tra Number:	acking	258282					
Diameter of Bo	rehole:	7 inches					
Total Depth of	Borehole:	20 feet					
Date Well Plug	ged:	1/20/2012					
Person Actually Performing Plu Operation:	/ gging	DARRIN S. STARK SR.					
License Numbe Plugging Opera	er of ator:	54891					
Plugging Metho	od:	Pour in 3/8 bentonite chips wh cement top 2 feet.	en standing water in well is les	ss than 100 feet in depth			
Plugging Varia	nce #:	No Data					
Casing Left Da	ta:	1st Interval: <b>No Data</b> 2nd Interval: <b>No Data</b> 3rd Interval: <b>No Data</b>					
Cement/Bentor	nite Plugs	1st Interval: From 20 ft to 2 ft; S	Sack(s)/type of cement used: 1-	BENTONITE			

Placed in Well:	2nd Interval: From 2 ft to 0 ft; Sack(s)/type of cement used: 1-CEMENT 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data					
Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.					
Company Information:	RIOMAR ENVIRONMENTAL DRILLING 9213 MONTANA STREET					

	JOSHUA , TX 76058
Plug Installer License Number:	54891
Licensed Plug Installer Signature:	DARRIN S. STARK SR.
Registered Plug Installer Apprentice Signature:	DERRICK DAMERON
Apprentice Registration Number:	57146
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #79665) on your written request.

Texas Department of Licensing & Regulation P.O. Box 12157 Austin, TX 78711 (512) 463-7880

LABORATORY ANALYTICAL REPORTS – STOCKPILE SAMPLES

ATTACHMENT C



# **OXIDOR Laboratory Review Checklist Cover Page**

#### Project Name: 112.052.003 Retaining Wall Project

Frisco

#### OXIDOR Job Number: 12080639 Exide Technologies

#### This data package consists of:

X This signature page, the laboratory review checklist, and the following reportable data:

- X R1 Field chain-of-custody documentation;
- X R2 Sample identification cross-reference;
- **XR3** Test reports (analytical data sheets) for each environmental sample that includes:

a) Items consistent with TNI Standard Module 2, Section 5.10

- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs);
- X **R4** Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits;
- XR5 Test reports/summary forms for blank samples;
- **XR6** Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits;
- **XR7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits;
- **XR8** Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates;
- X R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- X **R10** Other problems or anomalies.
- X The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.
- **Release Statement**: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Charles Brungardt

Name

President

September 4, 2012 Date



		Laboratory Review Che	ecklist: Reportable Data					
Laborat	ory Nar	ne: OXIDOR Laboratories, LLC	LRC Date: September 4, 2012					
Project	Name:	112.052.003 Retaining Wall Project	Laboratory Job Number: 12080639 Exide	de Technologies				
Review	er Nam	e: James A. Narens, III	QC Batch Number(s): See Cross-reference	_ist	-			
# <sup>1</sup>	A <sup>2</sup>	Description	•	Yes	No	NA <sup>3</sup>	$NR^4$	ER# <sup>5</sup>
R1	OI	Chain-of-Custody (C-O-C)						
		Did samples meet the laboratory's standard conditions of sar	mple acceptability upon receipt?	Х				
		Were all departures from standard conditions described in ar	n exception report?			Х		
R2	OI	Sample Quality Control (QC) and identification						
		Are all field sample ID numbers cross-referenced to the labo	ratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the corres	ponding QC data?	Х				
R3	OI	Test reports						
		Were all samples prepared and analyzed within holding time	s?	Х				
		Other than those results < MDL, were all other raw values br	acketed by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or supervi	sor?	Х				
		Were sample quantitation limits reported for all analytes not	detected?	Х				
		Were all results for soil and sediment samples reported on a	dry weight basis?			Х		
		Were % moisture (or solids) reported for all soil and sedimen	it samples?	_		Х		
	-	If required for the project, TICs reported?				Х		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extraction?		_		X	<b> </b>	
D <i>5</i>	OI	Were surrogate recoveries in all samples within the laborator	ry QC limits?			X		
KS	UI	Vers eppendix turne(a) of blank samples		v				
		Were appropriate type(s) of blanks analyzed?					<b>  </b>	
		Were blanks analyzed at the required frequency?	and including propagation and if	^				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?						
		Were blank concentrations < MQL?		Х				
<b>R6</b>	OI	Laboratory Control Samples (LCS)						
		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the entire analytical procedure	, including prep and cleanup steps?	Х				
		Were LCSs analyzed at the required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the laborato	ory QC limits?	Х				
		Was the LCSD RPD within QC limits?		Х				
<b>R7</b>	OI	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data						
		Were the project/method specified analytes included in the M	IS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?		X				
		Were MS (and MSD, if applicable) %Rs within the laboratory	QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?		<u> </u>				
R8	OI	Analytical duplicate data		- V				
		Were appropriate analytical duplicates analyzed for each ma	itrix?					
		Were analytical duplicates analyzed at the appropriate freque	ency?					
DO	OI	Were RPDs or relative standard deviations within the laborat	ory QC limits?					
К9	01	Are the MOLs for each method analyte included in the laboration $\Delta r$	atory data package?	Y				
		Do the MOL's correspond to the concentration of the lowest r	oon-zero calibration standard?	X				
		Are unadjusted MOLs included in the laboratory data package		X				
		Does the detectability check sample (DCS) data document the laboratory's canability to detect the						
		COCs at the MQL used to calculate the SQLs?		X				
<b>R10</b>	OI	Other problems/anomalies						
		Are all known problems/anomalies/special conditions noted i	n this LRC and ER?	Х				
		Is the laboratory NELAC-accredited under the Texas Labora analytes, matrices, and methods associated with this LRC	tory Accreditation Program for all ?	х				
		Was applicable and available technology used to lower the SQL to minimize any matrix interference effects on the sample results?						

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified

by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



## Laboratory Review Checklist: Supporting Data

Laborat	ory Nar	ne: OXIDOR Laboratories, LLC	RC Date: September 4, 2012					
Project	Name:	112.052.003 Retaining Wall Project La	boratory Job Number: 12080639 Exide	Techno	ologie	es		
Review	er Name	e: James A. Narens, III QC	C Batch Number(s): See Cross-reference Lis	st				
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	$NA^3$	$NR^4$	ER# <sup>5</sup>
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative response factors for each	analyte within QC limits?	Х				
		Were percent RSDs or correlation coefficient criteria met?		Х				
		Was the number of standards recommended in the method used	d for all analytes?	Х				
		Were all points generated between the lowest and highest stand	lard used to calculate the curve?	Х				
		Are ICAL data available for all instruments used?		Х				
		Has the initial calibration curve been verified using an appropriat	te second source standard?	Х				
S2	OI	Initial / continuing calibration verification (ICV / CCV) and co	ontinuing calibration blanks (CCB)					
		Was the CCV analyzed at the method required frequency?		Х				
		Were percent differences for each analyte within the method-req	quired QC limits?	Х				
		Was the ICAL curve verified for each analyte?		Х				
		Was the absolute value of the analyte concentration in the inorga	anic CCB < MDL?	Х				
<b>S3</b>	0	Mass spectral tuning						
		Was the appropriate compound for the method used for tuning?				Х		
		Were ion abundance data within the method-required QC limits?	?			Х		
S4	0	Internal Standards (IS)						
		Were IS area counts and retention times within the method-requ	uired QC limits?			Х		
S5	OI	Raw data (TNI Standard Module 2, Section 5.10)						
		Were the raw data (for example, chromatograms, spectral data)	reviewed by an analyst?	Х				
	-	Were data associated with manual integrations flagged on the ra	aw data?	Х				
<b>S6</b>	0	Dual column confirmation						
~-	-	Did dual column confirmation results meet the method-required	QC?			Х		
<b>S</b> 7	0	Tentatively Identified Compounds (TICs)						
GO	Ŧ	If TICs were requested, were the mass spectra and TIC data sul	bject to appropriate checks?			Х	_	
<u> </u>	1	Interference Check Sample (ICS) results - Metals		V				
CO	т	Were percent recoveries within the method QC limits?		X			_	
<u> </u>	1	Serial dilutions, post digestion spikes, and method of stand	lard additions - Metals	v				
010	01	Were percent differences, recoveries, and the linearity within the	e QC limits specified in the method?	X				
510	OI	Method Detection Limit (MDL) studies		v				
		Was a MDL study performed for each reported analyte?	0	X				
<b>Q11</b>	OI	Is the MDL either adjusted or supported by the analysis of DCSs	§?	^			_	
511	01	Was the laboratory's performance acceptable on the emiliable in	proficionaly tasta or avaluation studios?	Y				
S12	OL	standards documentation		^				
512	01	Are all standards used in the analysis NIST-traceable or obtains	d from other appropriate sources?	¥				
S13	OL	Compound/analyte identification procedures		^				
515	01	Are the procedures for compound/analyte identification documer	nted?	X				
<b>S14</b>	OI	Demonstration of Canability (DOC)		~				
514	01	Was DOC conducted consistent with TNI Standard Module 4	ection 1 6?	X				
		Is documentation of the analyst's competency un-to-date and on	n file?	X				
S15	OI	Verification/validation documentation for methods (TNI Star	ndard Module 4. Section 1.5)					
	91	Are all methods used to generate the data documented, verified	and validated, where applicable?	X				
S16	OI	Laboratory Standard Operating Procedures (SOPs)						
	91	Are laboratory SOPs current and on file for each method perform	ned?	X				
	1 Itor	I tame identified by the latter "D" must be included in the local mentary and penetrony data package submitted in the TDDD required report(s). Items identified						

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



Laboratory Review Checklist: Exception Reports								
Laborator	y Name: OXIDOR Laboratories, LLC	LRC Date: September 4, 2012						
Project Na	ame: 112.052.003 Retaining Wall Project	Laboratory Job Number: 12080639 Exide Technologies						
Reviewer	Name: James A. Narens, III	QC Batch Number(s): See Cross-reference List						
ER# <sup>1</sup>	DESCRIPTION							

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked on the LRC)





Silver

Tuesday, September 04, 2012

W&M Environmental Group, Inc. Frank Clark 906 E. 18th, Suite 100 Plano, TX 75074 Tel: (972) 516-0300 Fax: (972) 516-4145

Re: Project Name: Retaining Wall Project Project Number: 112.052.003 Project Location: Frisco

Oxidor received 1 solid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	Matrix	<u>Collected</u>	Analysis
12080639-001	SP-01	Solid	8/30/2012 08:30	TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP

Respectfully submitted,

Charles Brungardt President





## **Analytical Report**

SP-01							
12080	0639-001			Matrix: Se	olid		
8/30/2	2012		Sam	ole Collected: 8/	30/2012 08	:30	
MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
				08/30/12 16:00	1311	T.C.	
nt 09:20							
0.05	0.050	0.065	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	0.153	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.01	0.010	0.073	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.05	0.050	ND	mg/L	08/31/12 13:08	6020	K.O.	
0.01	0.010	ND	mg/L	08/31/12 13:08	6020	K.O.	
nt 09:00			-				
0.001	0.001	ND	mg/L	08/31/12 16:33	7470A	T.C.	
	SP-01 12080 8/30/2 MQL * 09:20 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.	SP-01   12080639-001   8/30/2012   MQL SQL   0.05 0.050   0.01 0.010	SP-01     12080639-001     8/30/2012     MQL   SQL   Result     0.05   0.050   0.065     0.05   0.050   ND     0.05   0.050   0.153     0.05   0.050   ND     0.01   0.010   ND	SP-01   Second 12   Samp     MQL   SQL   Result   Units     MQL   SQL   Result   Units     0.05   0.050   0.065   mg/L     0.05   0.050   ND   mg/L     0.01   0.010   ND   mg/L	SP-01   Matrix: Set     12080639-001   Sample Collected: 8/     MQL   SQL   Result   Units   Date Analyzed     MQL   SQL   Result   Units   Date Analyzed     08/30/12 16:00   0.05   0.050   0.065   mg/L   08/30/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.05   0.050   0.073     0.05   0.050   ND mg/L   08/31/12 13:08   0.05   0.050   ND mg/L   08/31/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.05   0.050   ND mg/L   08/31/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.05   0.050   ND mg/L   08/31/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.05   0.050   ND mg/L   08/31/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.01   0.010   ND mg/L   08/31/12 13:08     0.05   0.050   ND mg/L   08/31/12 13:08   0.01 <td>SP-01   Matrix: Solid     12080639-001   Sample Collected: 8/30/2012 08     MQL   SQL   Result   Units   Date Analyzed   Method     MQL   SQL   Result   Units   Date Analyzed   Method     (9920     0.05   0.050   0.065   mg/L   08/30/12 16:00   1311     (10920)   0.050   0.065   mg/L   08/31/12 13:08   6020     0.05   0.050   ND mg/L   08/31/12 13:08   6020   000     0.05   0.050   ND mg/L   08/31/12 13:08   6020   000</td> <td>SP-01 12080639-001 8/30/2012   Matrix: Solid     MQL   SQL   Result   Units   Date Analyzed   Method   Analyst     MQL   SQL   Result   Units   Date Analyzed   Method   Analyst     Mode SQL   Result   Units   Date Analyzed   Method   Analyst</td>	SP-01   Matrix: Solid     12080639-001   Sample Collected: 8/30/2012 08     MQL   SQL   Result   Units   Date Analyzed   Method     MQL   SQL   Result   Units   Date Analyzed   Method     (9920     0.05   0.050   0.065   mg/L   08/30/12 16:00   1311     (10920)   0.050   0.065   mg/L   08/31/12 13:08   6020     0.05   0.050   ND mg/L   08/31/12 13:08   6020   000     0.05   0.050   ND mg/L   08/31/12 13:08   6020   000	SP-01 12080639-001 8/30/2012   Matrix: Solid     MQL   SQL   Result   Units   Date Analyzed   Method   Analyst     MQL   SQL   Result   Units   Date Analyzed   Method   Analyst     Mode SQL   Result   Units   Date Analyzed   Method   Analyst





### Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
SP-01	12080639-001	TCLP Mercury	7470A	MERC_06623_L
		TCLP Silver	6020	META_05545_L
		TCLP Selenium	6020	META_05545_L
		TCLP Nickel	6020	META_05545_L
		TCLP Lead	6020	META_05545_L
		TCLP Chromium	6020	META_05545_L
		TCLP Cadmium	6020	META_05545_L
		TCLP Berylium	6020	META_05545_L
		TCLP Barium	6020	META_05545_L
		TCLP Arsenic	6020	META_05545_L
		TCLP Antimony	6020	META_05545_L





#### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID MERC_06623_L								
Blank	TCLP Mercury	ND mg/L							
LCS	TCLP Mercury	0.005 mg/L		0.005 mg/L	104%	85-115%			
LCSD	TCLP Mercury	0.005 mg/L		0.005 mg/L	101%	85-115%	0.5%	0-25%	
MS	TCLP Mercury	0.020 mg/L	ND	0.02 mg/L	99%	80-120%			
MSD	TCLP Mercury	0.021 mg/L	ND	0.02 mg/L	103%	80-120%	2.6%	0-25%	
QCBatch	ID META_05545_L								
Blank	TCLP Antimony	ND mg/L							
	TCLP Arsenic	ND mg/L							
	TCLP Barium	ND mg/L							
	TCLP Berylium	ND mg/L							
	TCLP Cadmium	ND mg/L							
	TCLP Chromium	ND mg/L							
	TCLP Lead	ND mg/L							
	TCLP Nickel	ND mg/L							
	TCLP Selenium	ND mg/L							
	TCLP Silver	ND mg/L							
LCS	TCLP Antimony	0.101 mg/L		0.1 ma/L	101%	85-115%			
	TCLP Arsenic	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Barium	0.102 mg/L		0.1 mg/L	102%	85-115%			
	TCLP Bervlium	0.105 mg/L		0.1 mg/L	105%	85-115%			
	TCLP Cadmium	0.101 mg/L		0.1 mg/L	101%	85-115%			
	TCLP Chromium	0.102 mg/L		0.1 mg/L	102%	85-115%			
	TCLP Lead	0.099 mg/l		0.1 mg/l	99%	85-115%			
	TCLP Nickel	0.104 mg/L		0.1 mg/L	104%	85-115%			
	TCI P Selenium	0.104 mg/l		0.1 mg/l	104%	85-115%			
	TCLP Silver	0.101 mg/L		0.1 mg/L	101%	85-115%			
LCSD	TCI P Antimony	0.101 mg/l		0.1 mg/l	101%	85-115%	0.4%	0-20%	
2002	TCL P Arsenic	0.102 mg/l		0.1 mg/l	102%	85-115%	1.0%	0-20%	
	TCL P Barium	0.101 mg/L		0.1 mg/L	101%	85-115%	0.6%	0-20%	
	TCL P Berylium	0.104 mg/L		0.1 mg/L	104%	85-115%	0.9%	0-20%	
	TCLP Cadmium	0.101 mg/L		0.1 mg/L	101%	85-115%	0.5%	0-20%	
		0.102 mg/l		0.1 mg/L	102%	85-115%	0.0%	0-20%	
	TCLP Lead	0.098 mg/l		0.1 mg/L	98%	85-115%	1.5%	0-20%	
	TCL P Nickel	0.000 mg/L		0.1 mg/L	103%	85-115%	1.0%	0-20%	
	TCL P Selenium	0.102 mg/L		0.1 mg/L	102%	85-115%	1.1%	0-20%	
		0.102 mg/L		0.1 mg/L	102%	85-115%	0.8%	0-20%	
MS		0.572 mg/l	0.065 mg/l	0.5 mg/L	100%	80-120%	0.070	0 20 /0	
MO	TCL P Arsenic	0.515 mg/L	ND	0.5 mg/L	103%	80-120%			
	TCLP Barium	0.656 mg/l	0 153 mg/l	0.5 mg/l	101%	80-120%			
	TCLP Bervlium	0.516 mg/L	ND	0.5 mg/l	10.3%	80-120%			
	TCLP Cadmium	0.579 mg/l	0.073 mg/l	0.5 mg/l	101%	80-120%			
	TCLP Chromium	0.475 mg/L	ND	0.5 mg/l	95%	80-120%			
	TCLPLead	0.479 mg/L	ND	0.5 mg/L	96%	80-120%			
		0.773 mg/L		0.0 mg/L	00/0	00-12070			





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_05545_L								
	TCLP Nickel	0.534 mg/L	ND	0.5 mg/L	107%	80-120%			
	TCLP Selenium	0.538 mg/L	ND	0.5 mg/L	108%	80-120%			
	TCLP Silver	0.502 mg/L	ND	0.5 mg/L	101%	80-120%			
MSD	TCLP Antimony	0.568 mg/L	0.065 mg/L	0.5 mg/L	101%	80-120%	0.7%	0-20%	
	TCLP Arsenic	0.511 mg/L	ND	0.5 mg/L	102%	80-120%	0.7%	0-20%	
	TCLP Barium	0.653 mg/L	0.153 mg/L	0.5 mg/L	100%	80-120%	0.5%	0-20%	
	TCLP Berylium	0.502 mg/L	ND	0.5 mg/L	101%	80-120%	2.7%	0-20%	
	TCLP Cadmium	0.573 mg/L	0.073 mg/L	0.5 mg/L	100%	80-120%	1.1%	0-20%	
	TCLP Chromium	0.468 mg/L	ND	0.5 mg/L	94%	80-120%	1.4%	0-20%	
	TCLP Lead	0.474 mg/L	ND	0.5 mg/L	95%	80-120%	0.9%	0-20%	
	TCLP Nickel	0.536 mg/L	ND	0.5 mg/L	107%	80-120%	0.4%	0-20%	
	TCLP Selenium	0.517 mg/L	ND	0.5 mg/L	104%	80-120%	3.9%	0-20%	
	TCLP Silver	0.495 mg/L	ND	0.5 mg/L	99%	80-120%	1.4%	0-20%	





## **Case Narrative**

#### Project Name: Retaining Wall Project

ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





## **Sample Preservation Verification**

#### Project Name: Retaining Wall Project

Receipt temp: <b>1.3</b> Receipt method: <b>Clie</b>	°C on Ice nt	All applicable VOA's received free of headspace: N/A						
Custody seal intact: Not	Present	All samples / labels received intact: Yes						
Customer Sample ID: SP	-01	Collected By: Nick Foreman						
Oxidor Sample ID: 120	080639-001	(	Collector Affiliation:	W&M Environ	mental Group, Inc.			
Collected: 08/	30/12 08:30		Matrix:	Solid				
<u>Bottle Type</u> 4 oz Glass Jar	<u>Count</u> 2	Collection Method Composite	<u>Parts / Interval</u>	Indicated <u>Preservation</u> Temp	<u>рН</u> -			

Sample conditions at time of receipt at laboratory verified in part or in whole by:

A.B.





## Chain of Custody

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17.9.17	Customer Sample ID	Date	Time	atrix	of Cont	ontaine	es Coc	/ dwo(	urts / In	Ŗ	3								Solids fo	orator
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### Chain of Custody

#### PROJECT DESCRIPTION: Retaining Wall Project

# **Ashley Bishop** 12080639 From: Nick Foreman [nforeman@wh-m.com] Thursday, August 30, 2012 12:12 PM CustomerService -Sent: To: Cc: Charles Brungardt Subject: Exide Sample It appears I forgot to actually "x" the box for analysis but please analyze the sample collected 8/30/12 (today) for TCLP Metals (RCRA-8, Sb, Ni, and Be). Thanks. Nick Foreman Environmental Scientist II W&M Environmental Group, Inc. 906 East 18th Street, Plano, Texas 75074 (o) 972.509.9609 (f) 972.516.4145 (c) 817.680.1417 Please don't print this e-mail unless you really need to.

1





# **OXIDOR Laboratory Review Checklist Cover Page**

## Project Name: 112.052.003 Retaining Wall

7174 South Fifth Street, Frisco, TX

#### OXIDOR Job Number: 12090435 W&M Environmental Group, Inc.

#### This data package consists of:

- X This signature page, the laboratory review checklist, and the following reportable data:
  - X R1 Field chain-of-custody documentation;
  - X R2 Sample identification cross-reference;
  - **R3** Test reports (analytical data sheets) for each environmental sample that includes:
    - a) Items consistent with TNI Standard Module 2, Section 5.10
      - b) dilution factors,
      - c) preparation methods,
      - d) cleanup methods, and
      - e) if required for the project, tentatively identified compounds (TICs);
  - **XR4** Surrogate recovery data including:
    - a) Calculated recovery (%R), and
    - b) The laboratory's surrogate QC limits;
  - XR5 Test reports/summary forms for blank samples;
  - X R6 Test reports/summary forms for laboratory control samples (LCSs) including:
    - a) LCS spiking amounts,
    - b) Calculated %R for each analyte, and
    - c) The laboratory's LCS QC limits;
  - **XR7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
    - a) Samples associated with the MS/MSD clearly identified,
    - b) MS/MSD spiking amounts,
    - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
    - d) Calculated %Rs and relative percent differences (RPDs), and
    - e) The laboratory's MS/MSD QC limits;
  - **XR8** Laboratory analytical duplicate (if applicable) recovery and precision:
    - a) the amount of analyte measured in the duplicate,
    - b) the calculated RPD, and
    - c) the laboratory's QC limits for analytical duplicates;
  - X R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
  - X **R10** Other problems or anomalies.
- X The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.
- **Release Statement**: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Charles Brungardt

Name

President

September 24, 2012 Date



## Laboratory Review Checklist: Reportable Data

Laborat	ony Nar		Date: September 24, 2012						
Project	Name:	nviro	nmor	tal C	roup	Inc			
Review	or Nam	List							
#1		Description	Dater Number(3). See Cross-reference Lis	νας	No	NΔ <sup>3</sup>	$NR^4$	ER# <sup>5</sup>	
# R1	OI	Chain-of-Custody (C-O-C)		103	INC	INA			
NI	01	Did samples meet the laboratory's standard conditions of sample	accentability upon receint?	X					
		Were all departures from standard conditions described in an exc	ention report?	~		x			
<b>R</b> 2	OI	Sample Quality Control (QC) and identification				~			
	01	Are all field sample ID numbers cross-referenced to the laboratory	/ ID numbers?	x					
		Are all laboratory ID numbers cross-referenced to the correspond	ing QC data?	X					
R3	OI	Test reports							
		Were all samples prepared and analyzed within holding times?		х					
		Other than those results < MDL, were all other raw values bracke	ted by calibration standards?	Х					
		Were calculations checked by a peer or supervisor?		Х					
		Were all analyte identifications checked by a peer or supervisor?		Х					
		Were sample quantitation limits reported for all analytes not detec	sted?	Х					
		Were all results for soil and sediment samples reported on a dry v	veight basis?	Х					
		Were % moisture (or solids) reported for all soil and sediment san	nples?	Х					
		If required for the project, TICs reported?				Х			
R4	0	Surrogate recovery data							
		Were surrogates added prior to extraction?		Х					
		Were surrogate recoveries in all samples within the laboratory QC	Climits?	Х					
R5	OI	Test reports/summary forms for blank samples							
		Were appropriate type(s) of blanks analyzed?		Х					
		Were blanks analyzed at the required frequency?		Х					
		Were method blanks taken through the entire analytical process,	including preparation and, if	х					
		applicable, cleanup procedures?		v					
D4	OI	were blank concentrations < MQL?		^					
КО	01	Ware all COCs included in the LCS2		Y					
		Were all COCS included in the LCS:	uding prep and cleanup steps?	X					
		Was each LCS taken through the entire analytical procedure, incl Were LCSs analyzed at the required frequency?	during prep and cleanup steps:	X					
		Were LCS (and LCSD, if applicable) %Rs within the laboratory O	C limits?	X					
		Was the LCSD RPD within QC limits?		X					
<b>R7</b>	OI	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data							
		Were the project/method specified analytes included in the MS ar	nd MSD?	Х					
		Were MS/MSD analyzed at the appropriate frequency?		Х					
		Were MS (and MSD, if applicable) %Rs within the laboratory QC	limits?	Х					
		Were MS/MSD RPDs within laboratory QC limits?		Х					
<b>R8</b>	OI	Analytical duplicate data							
		Were appropriate analytical duplicates analyzed for each matrix?		Х					
		Were analytical duplicates analyzed at the appropriate frequency	?	Х					
		Were RPDs or relative standard deviations within the laboratory C	QC limits?	Х					
R9	OI	Method Quantitation Limits (MQLs)							
		Are the MQLs for each method analyte included in the laboratory	data package?	Х					
		Do the MQLs correspond to the concentration of the lowest non-z	ero calibration standard?	Х					
		Are unadjusted MQLs included in the laboratory data package?		Х					
		Does the detectability check sample (DCS) data document the lat COCs at the MQL used to calculate the SQLs?	poratory's capability to detect the	х					
<b>R10</b>	OI	Other problems/anomalies							
		Are all known problems/anomalies/special conditions noted in this	s LRC and ER?		Χ			ER#1	
		Is the laboratory NELAC-accredited under the Texas Laboratory / analytes, matrices, and methods associated with this LRC?	Accreditation Program for all	Х					
		Was applicable and available technology used to lower the SQL t effects on the sample results?	o minimize any matrix interference	X					

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified

by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



## Laboratory Review Checklist: Supporting Data

Laborat	ory Nar	ne: OXIDOR Laboratories, LLC	LRC Date: September 24, 2012					
Project	Name:	112.052.003 Retaining Wall	Laboratory Job Number: 12090435 W&N	1 Enviro	nme	ntal G	roup,	Inc.
Reviewe	er Nam	e: James A. Narens, III	QC Batch Number(s): See Cross-reference	List				
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	$NR^4$	ER# <sup>5</sup>
<b>S1</b>	OI	Initial calibration (ICAL)						
		Were response factors and/or relative response factors for ea	ch analyte within QC limits?	Х				
		Were percent RSDs or correlation coefficient criteria met?		Х				
		Was the number of standards recommended in the method us	sed for all analytes?	Х				
		Were all points generated between the lowest and highest sta	andard used to calculate the curve?	Х				
		Are ICAL data available for all instruments used?		Х				
		Has the initial calibration curve been verified using an approp	riate second source standard?	Х				
S2	OI	Initial / continuing calibration verification (ICV / CCV) and	continuing calibration blanks (CCB)					
		Was the CCV analyzed at the method required frequency?		Х				
		Were percent differences for each analyte within the method-	required QC limits?	Х				
		Was the ICAL curve verified for each analyte?		Х				
		Was the absolute value of the analyte concentration in the inc	organic CCB < MDL?	Х				
<b>S3</b>	0	Mass spectral tuning						
		Was the appropriate compound for the method used for tuning	g?	Х				
		Were ion abundance data within the method-required QC limi	ts?	Х				
S4	0	Internal Standards (IS)						
		Were IS area counts and retention times within the method-re	equired QC limits?	Х				
S5	OI	Raw data (TNI Standard Module 2, Section 5.10)						
		Were the raw data (for example, chromatograms, spectral dat	Х					
		Were data associated with manual integrations flagged on the	e raw data?	Х				
<b>S6</b>	0	Dual column confirmation						
		Did dual column confirmation results meet the method-require	ed QC?			Х		
S7	0	Tentatively Identified Compounds (TICs)						
		If TICs were requested, were the mass spectra and TIC data	subject to appropriate checks?			Х		
<b>S8</b>	Ι	Interference Check Sample (ICS) results - Metals						
		Were percent recoveries within the method QC limits?		Х				
<b>S9</b>	Ι	Serial dilutions, post digestion spikes, and method of sta	ndard additions - Metals					
		Were percent differences, recoveries, and the linearity within	the QC limits specified in the method?	Х				
S10	OI	Method Detection Limit (MDL) studies						
		Was a MDL study performed for each reported analyte?		Х				
		Is the MDL either adjusted or supported by the analysis of DC	Ss?	Х				
S11	OI	Proficiency test reports						
		Was the laboratory's performance acceptable on the applicab	le proficiency tests or evaluation studies?	Х				
S12	OI	Standards documentation						
		Are all standards used in the analysis NIST-traceable or obtai	ned from other appropriate sources?	Х				
S13	OI	Compound/analyte identification procedures						
		Are the procedures for compound/analyte identification docun	nented?	Х				
S14	OI	Demonstration of Capability (DOC)						
		Was DOC conducted consistent with TNI Standard Module 4,	Section 1.6?	Х				
		Is documentation of the analyst's competency up-to-date and	on file?	Х				
S15	OI	Verification/validation documentation for methods (TNI S	tandard Module 4, Section 1.5)					
		Are all methods used to generate the data documented, verifi	ed, and validated, where applicable?	Х				
<b>S16</b>	OI	Laboratory Standard Operating Procedures (SOPs)						
		Are laboratory SOPs current and on file for each method perfe	ormed?	Χ				
	1 Iter	ns identified by the letter "R" must be included in the laboratory data pac	$\frac{1}{1000}$ kage submitted in the TRRP-required report(s). Item	ns identif	ied –			

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



	Laboratory Review Chee	cklist: Exception Reports
Laborator	y Name: OXIDOR Laboratories, LLC	LRC Date: September 24, 2012
Project N	ame: 112.052.003 Retaining Wall	Laboratory Job Number: 12090435 W&M Environmental Group, Inc.
Reviewer	Name: James A. Narens, III	QC Batch Number(s): See Cross-reference List
ER# <sup>1</sup>	DESCRIPTION	
ER#1	For pH, samples should be analyzed as soon as possible a 12090435-001 and -002.	nd preferably at the time of collection for Oxidor Sample ID's

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked on the LRC)





Monday, September 24, 2012

W&M Environmental Group, Inc. Frank Clark 906 E. 18th, Suite 100 Plano, TX 75074 Tel: (972) 516-0300 Fax: (972) 516-4145

Re: Project Name: Retaining Wall Project Number: 112.052.003 Project Location: 7174 South Fifth Street, Frisco, TX

Oxidor received 2 solid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	<u>Collected</u>	Analysis
12090435-001	SP-02	Solid	9/21/2012 10:45	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons
12090435-002	SP-03	Solid	9/21/2012 10:52	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons

Respectfully submitted,

Charles Brungardt President





## **Analytical Report**

#### Project Name: Retaining Wall

Customer Sampl	e ID: SP-02	2						
Oxidor Sampl	e ID: 1209	0435-001			Matrix: S	olid		
Sample Rece	ived: 9/21/2	2012		Samp	ole Collected: 9	/21/2012 1	0:45	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	76.0	%	09/24/12 09:00	Dry Weight	L.J.	
pН	0.1	0.1	7.6	pH Units	09/21/12 16:21	9045	E.R.	S-12
Metals								
Digested by method 3005A on 0	9/24/12 at 09:50							
TCLP Antimony	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Barium	0.05	0.050	0.113	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.011	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Lead	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	09/24/12 13:51	6020	K.O.	
TCLP Silver	0.01	0.010	ND	mg/L	09/24/12 13:51	6020	K.O.	
Digested by method 7470A on 0	9/24/12 at 09:30							
TCLP Mercury	0.001	0.001	ND	mg/L	09/24/12 15:01	7470A	T.C.	
<b>Total Petroleum Hyd</b>	drocarbons							
Prepared by method TX 1005 or	n 09/21/12 at 11:00							
TPH (C 6 to C12)	25	32.9	ND	mg/Kg	09/21/12 22:14	TX 1005	K.J.	
TPH (C12 to C28)	25	32.9	ND	mg/Kg	09/21/12 22:14	TX 1005	K.J.	
TPH (C28 to C35)	25	32.9	ND	mg/Kg	09/21/12 22:14	TX 1005	K.J.	
TPH (C6 to C35)	25	32.9	ND	mg/Kg	09/21/12 22:14	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			100	mg/Kg	100 mg/Kg	100%	70-130%	
o-Terphenyl			107	mg/Kg	100 mg/Kg	107%	70-130%	
Sample Prep								
TCI P Motals Extrac	tion							
TCLD Extraction					00/22/12 15:20	1011	тс	
ICLP EXHACION					09/23/12 15:30	1311	1.0.	





## **Analytical Report**

#### Project Name: Retaining Wall

Customer Sampl	le ID: SP-0	3						
Oxidor Sampl	le ID: 1209	0435-002			Matrix: S	olid		
Sample Rece	vived: 9/21/2	2012		Samp	ole Collected: 9/	/21/2012 10	0:52	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	81.0	%	09/24/12 09:00	Dry Weight	L.J.	
рН	0.1	0.1	7.7	pH Units	09/21/12 16:21	9045	E.R.	S-12
Metals								
Digested by method 3005A on 0	09/24/12 at 09:50							
TCLP Antimony	0.05	0.050	0.131	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Barium	0.05	0.050	0.086	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.014	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Lead	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	09/24/12 13:57	6020	K.O.	
TCLP Silver	0.01	0.010	ND	mg/L	09/24/12 13:57	6020	K.O.	
Digested by method 7470A on 0	09/24/12 at 09:30							
TCLP Mercury	0.001	0.001	ND	mg/L	09/24/12 15:02	7470A	T.C.	
<b>Total Petroleum Hy</b>	drocarbons							
Prepared by method TX 1005 or	n 09/21/12 at 11:00							
TPH (C 6 to C12)	25	30.9	ND	mg/Kg	09/21/12 23:02	TX 1005	K.J.	
TPH (C12 to C28)	25	30.9	ND	mg/Kg	09/21/12 23:02	TX 1005	K.J.	
TPH (C28 to C35)	25	30.9	ND	mg/Kg	09/21/12 23:02	TX 1005	K.J.	
TPH (C6 to C35)	25	30.9	ND	mg/Kg	09/21/12 23:02	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			100	mg/Kg	100 mg/Kg	100%	70-130%	
o-Terphenyl			109	mg/Kg	100 mg/Kg	109%	70-130%	
Sample Prep								
TCI P Motals Extrac	stion							
					00/22/12 15:20	1011	тс	
ICLP EXITACIION					09/23/12 15:30	1311	1.0.	





### Sample Cross Reference

#### Project Name: Retaining Wall

Customer ID:	Lab ID:	Test	Method	QCBatchID:
SP-02	12090435-001	Total Petroleum Hydrocarbons	TX 1005	1005_03629AS
		Dry Weight	Dry Weight	DW05226_S
		TCLP Mercury	7470A	MERC_08123_L
		TCLP Antimony	6020	META_09445_L
		TCLP Arsenic	6020	META_09445_L
		TCLP Barium	6020	META_09445_L
		TCLP Berylium	6020	META_09445_L
		TCLP Cadmium	6020	META_09445_L
		TCLP Chromium	6020	META_09445_L
		TCLP Lead	6020	META_09445_L
		TCLP Nickel	6020	META_09445_L
		TCLP Selenium	6020	META_09445_L
		TCLP Silver	6020	META_09445_L
		рН	9045	PH03115_S
SP-03	12090435-002	Total Petroleum Hydrocarbons	TX 1005	1005_03629AS
		Dry Weight	Dry Weight	DW05226_S
		TCLP Mercury	7470A	MERC_08123_L
		TCLP Antimony	6020	META_09445_L
		TCLP Arsenic	6020	META_09445_L
		TCLP Barium	6020	META_09445_L
		TCLP Berylium	6020	META_09445_L
		TCLP Cadmium	6020	META_09445_L
		TCLP Chromium	6020	META_09445_L
		TCLP Lead	6020	META_09445_L
		TCLP Nickel	6020	META_09445_L
		TCLP Selenium	6020	META_09445_L
		TCLP Silver	6020	META_09445_L
		рН	9045	PH03115_S




### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID DW05226_S								
Replicate	% Solids	78.2 %	76.0 %				2.9%	0-20%	
QCBatch	ID PH03115_S								
LCS	pН	7.0 pH Units		7 pH Units	100%	99-102%			
LCSD	рН	7.0 pH Units		7 pH Units	101%	99-102%	0.6%	0-25%	
Replicate	рН	7.3 pH Units	7.0 pH Units				4.2%	0-10%	
QCBatch	ID MERC_08123_L								
Blank	TCLP Mercury	ND mg/L							
LCS	TCLP Mercury	0.005 mg/L		0.005 mg/L	96%	85-115%			
LCSD	TCLP Mercury	0.005 mg/L		0.005 mg/L	101%	85-115%	1.4%	0-25%	
MS	TCLP Mercury	0.021 mg/L	ND	0.02 mg/L	103%	80-120%			
MSD	TCLP Mercury	0.019 mg/L	ND	0.02 mg/L	96%	80-120%	9.5%	0-25%	
QCBatch	ID META_09445_L								
Blank	TCLP Antimony	ND mg/L							
	TCLP Arsenic	ND mg/L							
	TCLP Barium	ND mg/L							
	TCLP Berylium	ND mg/L							
	TCLP Cadmium	ND mg/L							
	TCLP Chromium	ND mg/L							
	TCLP Lead	ND mg/L							
	TCLP Nickel	ND mg/L							
	TCLP Selenium	ND mg/L							
	TCLP Silver	ND mg/L							
LCS	TCLP Antimony	0.101 mg/L		0.1 mg/L	101%	85-115%			
	TCLP Arsenic	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Barium	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Berylium	0.097 mg/L		0.1 mg/L	97%	85-115%			
	TCLP Cadmium	0.101 mg/L		0.1 mg/L	101%	85-115%			
	TCLP Chromium	0.102 mg/L		0.1 mg/L	102%	85-115%			
	TCLP Lead	0.100 mg/L		0.1 mg/L	100%	85-115%			
	TCLP Nickel	0.103 mg/L		0.1 mg/L	104%	85-115%			
	TCLP Selenium	0.102 mg/L		0.1 mg/L	102%	85-115%			
	TCLP Silver	0.102 mg/L		0.1 mg/L	102%	85-115%			
LCSD	TCLP Antimony	0.101 mg/L		0.1 mg/L	101%	85-115%	0.2%	0-20%	
	TCLP Arsenic	0.103 mg/L		0.1 mg/L	103%	85-115%	0.4%	0-20%	
	TCLP Barium	0.102 mg/L		0.1 mg/L	102%	85-115%	0.8%	0-20%	
	ICLP Berylium	0.099 mg/L		0.1 mg/L	99%	85-115%	2.1%	0-20%	
	TCLP Cadmium	0.101 mg/L		0.1 mg/L	101%	85-115%	0.2%	0-20%	
	ICLP Chromium	0.102 mg/L		0.1 mg/L	103%	85-115%	0.5%	0-20%	
	TCLP Lead	0.100 mg/L		0.1 mg/L	100%	85-115%	0.1%	0-20%	
	TCLP Nickel	0.104 mg/L		0.1 mg/L	104%	85-115%	0.6%	0-20%	
	TCLP Selenium	0.102 mg/L		0.1 mg/L	102%	85-115%	0.2%	0-20%	
	TCLP Silver	0.102 mg/L		0.1 mg/L	102%	85-115%	0.0%	0-20%	





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID META_09445_L								
MS	TCLP Antimony	0.507 mg/L	ND	0.5 mg/L	101%	80-120%			
	TCLP Arsenic	0.516 mg/L	ND	0.5 mg/L	103%	80-120%			
	TCLP Barium	0.561 mg/L	0.049 mg/L	0.5 mg/L	102%	80-120%			
	TCLP Berylium	0.506 mg/L	ND	0.5 mg/L	101%	80-120%			
	TCLP Cadmium	0.496 mg/L	ND	0.5 mg/L	99%	80-120%			
	TCLP Chromium	0.509 mg/L	ND	0.5 mg/L	102%	80-120%			
	TCLP Lead	0.495 mg/L	ND	0.5 mg/L	99%	80-120%			
	TCLP Nickel	0.580 mg/L	0.052 mg/L	0.5 mg/L	106%	80-120%			
	TCLP Selenium	0.528 mg/L	ND	0.5 mg/L	106%	80-120%			
	TCLP Silver	0.508 mg/L	ND	0.5 mg/L	102%	80-120%			
MSD	TCLP Antimony	0.501 mg/L	ND	0.5 mg/L	100%	80-120%	1.2%	0-20%	
	TCLP Arsenic	0.498 mg/L	ND	0.5 mg/L	100%	80-120%	3.6%	0-20%	
	TCLP Barium	0.545 mg/L	0.049 mg/L	0.5 mg/L	99%	80-120%	2.8%	0-20%	
	TCLP Berylium	0.504 mg/L	ND	0.5 mg/L	101%	80-120%	0.3%	0-20%	
	TCLP Cadmium	0.504 mg/L	ND	0.5 mg/L	101%	80-120%	1.6%	0-20%	
	TCLP Chromium	0.499 mg/L	ND	0.5 mg/L	100%	80-120%	2.1%	0-20%	
	TCLP Lead	0.490 mg/L	ND	0.5 mg/L	98%	80-120%	1.0%	0-20%	
	TCLP Nickel	0.570 mg/L	0.052 mg/L	0.5 mg/L	104%	80-120%	1.7%	0-20%	
	TCLP Selenium	0.512 mg/L	ND	0.5 mg/L	102%	80-120%	3.1%	0-20%	
	TCLP Silver	0.508 mg/L	ND	0.5 mg/L	102%	80-120%	0.1%	0-20%	
QCBatc	hID 1005_03629AS								
Blank	TPH (C 6 to C12)	ND mg/Kg							
	TPH (C12 to C28)	ND mg/Kg							
	TPH (C28 to C35)	ND mg/Kg							
	TPH (C6 to C35)	ND mg/Kg							
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	111 mg/Kg		100 mg/Kg	111%	70-130%			
	o-Terphenyl	121 mg/Kg		100 mg/Kg	121%	70-130%			
LCS	TPH (C6 to C35)	110 mg/Kg		100 mg/Kg	110%	75-125%			
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	96.9 mg/Kg		100 mg/Kg	97%	70-130%			
	o-Terphenyl	105 mg/Kg		100 mg/Kg	105%	70-130%			
LCSD	TPH (C6 to C35)	117 mg/Kg		100 mg/Kg	117%	75-125%	6.2%	0-20%	
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	102 mg/Kg		100 mg/Kg	102%	70-130%			
	o-Terphenvl	112 ma/Ka		100 ma/Ka	112%	70-130%			
MS	TPH (C6 to C35)	116 mg/Kg	ND	100 mg/Kg	116%	75-125%			
Surro	aate	Result		Spike Conc	Recovery	Rec Limits			
00.10	1-chlorooctane	107 ma/Ka		100 mg/Kg	107%	70-130%			
	o-Terphenyl	116 mg/Kg		100 mg/Kg	116%	70-130%			
MSD	TPH (C6 to C35)	120 mg/Kg	ЛЛ	100 mg/Kg	120%	75-125%	3 4%	0-20%	
WOD	111 (00 10 033)	120 mg/ng	ND	i oo mg/reg	12070	10-120/0	0.470	0-20 /0	





### **QC Summary**

		Reference			Rec		RPD	
QC Type Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatchID 1005_03629AS								
Surrogate	Result		Spike Conc	Recovery	Rec Limits			
1-chlorooctane	109 mg/Kg		100 mg/Kg	109%	70-130%			
o-Terphenyl	117 mg/Kg		100 mg/Kg	117%	70-130%			





### **Case Narrative**

Project Name:	Retaining Wall
S-12	Sample should be analyzed as soon as possible and preferably at the time of collection.
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





## **Sample Preservation Verification**

### Project Name: Retaining Wall

Receipt temp: <b>1.3</b> °C or Receipt method: <b>Client</b> Custody seal intact: <b>Not Pres</b>	n Ice sent		All sample	es / labels rec	eived intact: <b>Yes</b>			
Customer Sample ID: SP-02		Collected By: Brent Vollmar						
Oxidor Sample ID: 1209043	5-001		Collector Affiliation:	W&M Enviror	nmental Group, Inc.			
Collected: 09/21/12	10:45	Matrix: Solid						
<u>Bottle Type</u> 4 oz Glass Jar	Count 3	Collection Method Composite	Parts / Interval	Indicated <u>Preservation</u> Temp	<u>рН</u> -			
Customer Sample ID: SP-03			Collected By:	Brent Vollma	r			
Oxidor Sample ID: 1209043	5-002		Collector Affiliation:	W&M Enviror	nmental Group, Inc.			
Collected: 09/21/12	10:52		Matrix:	Solid				
<u>Bottle Type</u> 4 oz Glass Jar	<u>Count</u> 3	Collection Method Composite	Parts / Interval	Indicated <u>Preservation</u> Temp	<u>рН</u> -			

Sample conditions at time of receipt at laboratory verified in part or in whole by:

A.B.





## Chain of Custody

### PROJECT DESCRIPTION: Retaining Wall

		OXIDOR Laboratories,	LLC											Ch	ain	of C	usto	dy I	Rec	ord
Stard Report 16       Propert / Report Information       Propert / Report Information       Conservation       Conserva		1825 East Plano Parkway. #160 Plano. TX: 75074-8570 P: 972 424.6422 F: 972.424.650 customerservice@oxidor.com	98	:	Ĩ	ÌE										F	'age _	1	of	<u>    t     </u>
Company Name       WARM       Environmatch 6       Gray         Address	Sand Percet To				Proi	ect/	Repo	rt Infe	orma	tion										
Address       MC       E. 128/L       State       Top page Name       Retaining       Wall         City       RUMO       State       Zip       75074       Project Name       Retaining       Wall       Project Name       Retaining       Wall       Project Name       P	Company Name	WEM Environments	l Gaug	<b>.</b> .	Circi	e Re 7-1	ques 1 Day	ted T	utn A 5-3	roun 7 Day	d Tin 's	ne (L BL	ess th ISH	ian 2 Da 3-	iys mi 4 Dav	ust be v vs	erified w 2 Dat	vith lat	») 4	ASAP
Chy       Choose TX       Zo       75074       Project Loarton       7174       Soundtur, Ficht, School, Finisco, TX         Center Ham       FRAMA       Classe       Does       Time       Does       Does       Does       Sampler Name       Sampler Company       Sampl	Address QEV	Fish St.			Proj	ect N	ame	F	?ex	ta.	In	ín	<i>.</i>	U	rel	10	,	•••••	····•	
Content Name       Frank & CLARK       Frank & CLARK       Frank & CLARK       Propert #       III 2.052.003       Sample Company       Sample Company       Sample Company       Mature         Phone (972) SDP - 76.11       Fax       Sample Company       Sample Co	City Prov	State-	Zip メージテク	71	Proj	ect L	ocatio	оп _	713	т 14		5.4	1	Fil		ر ماري	l	Ĩ.		- TV
Contact Erner Prome (PT2) 509-96 (1) Fox Sample Name Low And	Contact Name	Energy 0	~ 7 <u>50</u>	<u>79</u>	Proj	ect #	11	21	252	י א ד	<u>_</u>	ပျမ	ust	P0	#	<u> 97 r</u>	ex.,	.1.27	30	2,10
Priore   Sold Much - Mic Com   Durow Mice   Multinian     Send brocks T_COMP   Department from above   Martin Code   Sprail informations     Send brocks T_COMP   Department from above   Martin Code   Sprail informations     Address   Information Code   Sprail informations   Sprail informations     Company Name   Information Code   Sprail informations   Sprail informations     Address   Information Code   Information Code   Sprail informations     Contract Name   Information Code   Information Code   Sprail informations     Proces   Fax   Contract Name   Information Code   Sprail informations     OxiDOR   Customer Sample ID   Sample Information Code   Sprail informations   Sprail informations     IZ OF 0425   Dot 1   SP-02   9/21/21   If is respective to additional markets     001   SP-03   9/21/21   If is respective to additional markets     11   Sprail   Sprail   Sprail   Sprail     12   SP-03   9/21/21   If is respective to additional markets     13   Information Code   Sprail   Sprail   Sprail     14   Information Code   Sprail   Sprail   Sprail     13   Information Code	Contact Email	A CLARK			Sam	pler	Name	-,- -	. I		20	_		Sar	npler	Compar	ıy y	18		
Samet mode 12 (Corby II Defermed from above)       Matrix Codes       Security Co	Phone (972)	509-9611 Fax			San	pler	Signa	ىر ature	vo Ø	ur an	5A 	R Q	L	ble	le.	<u>~</u> _		140	1	
Contract Name   V. Witten A.du     Address   V. Witten A.du     Contract Name   Proceeding Codes     Proce   Fax     Contract Name   Contract Name     Proce   Fax     Contract Name   Contract Name     Contract Name   Contract Name     Contract Name   Contract Name     Contract Name   Contract Name     Contract Name   Contract Codes     Contract Name   Contract Name     Contract Name   Contract Codes     Contract Name   Contract Name     Contract Name   Contract Name  <	Send Invoice To (C	Only if Different from above)			Mate	ix Co	des c	- Sol		Spec	aal Ir	nstruc	tions	•						
Address   Press atom 0.006     City   State   Ze     Contact Name   Press atom 0.006     Phone   Pax     Phone   Pax     Contact Name   Press atom 0.006     Contact Name   Press atom 0.006     Contact Name   Press atom 0.006     Contact Name   Pax     Contact Name   Press atom 0.006     Press atom 0.006   P	Company Name				W.	Wipe	s A	- Air												
City       State       Zp       Z + MO, S + MADH       Please control control regress profix addiced analysis         Contract Name       S + MOS, S + MADH       S + MOS, S + MADH       Please control control regress profix addiced analysis         Proce       Fax       S + MOS, S + MADH       Please control regress profix addiced analysis         OXIDOR Order TD       Customer Sample ID       Sample Info       If y y y y y y y y y y y y y y y y y y y	Address				Pres 1 - N	sevat Ione	ion C 4 -	HCI		_										
Contract Name       Proce       Fax       Proces       Proc	City	State	Zip		2 - H 3 - H	INO₃ I₂SO	5- 6-	NaC Ice	н	'Plea	ase c	onfin	m con	ditional Red	reque	sts prio	r to addi nalvei	itional is	analy	515
Phone   Fax   P-Pleate C - Class     OXIDOR Order ID Order ID 2056/425   Customer Sample ID Date   Sample Info Date   Image and Image and Im	Contact Name				7 - C	Other taine	r Coc	les				8						Ť	Т	Τ.
OXIDOR Order ID Order ID       Customer Sample ID       Sample Info       user of the second	Phone	Fax			P - F	Plasti Othei	c G	Gla	ss			12							- 3	CKIISI Pagee
OXIDOR Order ID       Customer Sample ID       Sample Info       u <thu< th="">       u       u       u</thu<>	· · ·				 	1						ð	B.						Weigi	W Clie Data
Order ID     Customer Sample ID     Jain per Into     Into Per Into<	OXIDOR	· · · · · · · · · · · · · · · · · · ·	Sample	Info	1	iners	lype		G)rab	arval		2 M	1		-				AU /s	Kevie
12.050435     0ate     Time	Order ID	Customer Sample ID	Jampie	5 10		Conta	aincr	Code	)/ (	s / Inte		50	4		a	Ž			Solid	matog
001       1       SP-02       9/21/2       10:52       S       3       G       G       X	12090435		Date	Time	Matr	ה #	Cont	Pres	(î)	Parts	Hold	۲	3		٣	4		4	lota	
0U2       2       SP-03       9/21/12       10:52       S       3       6       6       X       X       V	001	1 SP-02	9/21/12	10:45	s	3	G	6	6			4	$ \chi $		X	X		}	1 ×	<u> </u>
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## Chain of Custody

### PROJECT DESCRIPTION: Retaining Wall

						Page 1 of 1
Ashley	Bishop					12090435
From:	Brent Volimar (bvoil)	mar@wh-m.com]		Minham =		
Sent:	Friday, September 2	21, 2012 12:08 PM				
To:	CustomerService					
Subject	: samples dropped of	f at 11:53 9-21-12	(112.052.003)			
Samples d metals sar	ropped off at 11:53 9 nples are TCLP metals	-21-12 for project   did not mark	#: 112.053.003 it for Sb, Ni, or	B Just wante Be samples	d to make sure are ASAP TAT.	you know that all
Thanks,						
Brent Voll 972.509.9	mar 600					
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0/01/0010	•					





Wednesday, October 24, 2012

W&M Environmental Group, Inc. Frank Clark 906 E. 18th, Suite 100 Plano, TX 75074 Tel: (972) 516-0300 Fax: (972) 516-4145

### Re: Project Name: Retaining Wall Project Number: 112.052.003 Project Location: 7471 South Fifth Street, Frisco, TX

Oxidor received 3 solid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	<u>Analysis</u>
12100625-001	SP-04	Solid	10/22/2012 12:20	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons
12100625-002	SP-05	Solid	10/22/2012 12:25	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons
12100625-003	SP-06	Solid	10/22/2012 12:30	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons

Respectfully submitted,

/ --

Charles Brungardt President





### **Analytical Report**

Customer Sampl	e ID: SP-04	4						
Oxidor Sampl	e ID: 1210	0625-001			Matrix: S	olid		
Sample Rece	ived: 10/22	/2012		Samp	ole Collected: 1	0/22/2012 <sup>-</sup>	12:20	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	84.0	%	10/22/12 20:00	Dry Weight	M.B.	
pН	0.1	0.1	8.2	pH Units	10/22/12 21:00	9045	M.B.	S-12
Metals								
Digested by method 3005A on 1	10/23/12 at 10:55							
TCLP Antimony	0.05	0.050	0.116	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Barium	0.05	0.050	0.137	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.267	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Lead	0.05	0.487	12.5	mg/L	10/23/12 15:21	6020	K.O.	D-1
TCLP Nickel	0.05	0.050	ND	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	10/23/12 15:15	6020	K.O.	
TCLP Silver	0.01	0.010	ND	mg/L	10/23/12 15:15	6020	K.O.	
Digested by method 7470A on 1	10/23/12 at 10:15			•				
TCLP Mercury	0.001	0.001	ND	mg/L	10/23/12 17:11	7470A	T.C.	
<b>Total Petroleum Hy</b>	drocarbons							
Prepared by method TX 1005 or	n 10/22/12 at 11:00							
TPH (C 6 to C12)	25	29.8	ND	mg/Kg	10/23/12 01:04	TX 1005	K.J.	
TPH (C12 to C28)	25	29.8	ND	mg/Kg	10/23/12 01:04	TX 1005	K.J.	
TPH (C28 to C35)	25	29.8	ND	mg/Kg	10/23/12 01:04	TX 1005	K.J.	
TPH (C6 to C35)	25	29.8	ND	mg/Kg	10/23/12 01:04	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	<b>Rec Limits</b>	
1-chlorooctane			115	mg/Kg	100 mg/Kg	115%	70-130%	
o-Terphenyl			107	mg/Kg	100 mg/Kg	107%	70-130%	
Sample Prep								
TCI P Metals Extrac	tion							
TCI P Extraction					10/22/12 17:40	1311	КO	
					10/22/12 17.40	1311	N.U.	





### **Analytical Report**

Customer Sampl	e ID: SP-0	5						
Oxidor Sampl	e ID: 1210	0625-002			Matrix: S	olid		
Sample Rece	ived: 10/22	2/2012		Samp	ole Collected: 1	<b>0/22/2012</b>	12:25	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	88.2	%	10/22/12 20:00	Dry Weight	M.B.	
pН	0.1	0.1	8.2	pH Units	10/22/12 21:00	9045	M.B.	S-12
Metals								
Digested by method 3005A on 1	0/23/12 at 10:55							
TCLP Antimony	0.05	0.050	0.082	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Barium	0.05	0.050	0.072	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.039	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Lead	0.05	0.050	0.079	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	10/23/12 15:27	6020	K.O.	
TCLP Silver	0.01	0.010	ND	mg/L	10/23/12 15:27	6020	K.O.	
Digested by method 7470A on 1	0/23/12 at 10:15							
TCLP Mercury	0.001	0.001	ND	mg/L	10/23/12 17:11	7470A	T.C.	
<b>Total Petroleum Hy</b>	drocarbons							
Prepared by method TX 1005 or	n 10/22/12 at 11:00							
TPH (C 6 to C12)	25	28.3	ND	mg/Kg	10/23/12 02:48	TX 1005	K.J.	
TPH (C12 to C28)	25	28.3	110	mg/Kg	10/23/12 02:48	TX 1005	K.J.	
TPH (C28 to C35)	25	28.3	33.8	mg/Kg	10/23/12 02:48	TX 1005	K.J.	
TPH (C6 to C35)	25	28.3	143.8	mg/Kg	10/23/12 02:48	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			119	mg/Kg	100 mg/Kg	119%	70-130%	
o-Terphenyl			121	mg/Kg	100 mg/Kg	121%	70-130%	
Sample Prep								
TCLP Metals Extrac	tion							
TCI P Extraction					10/22/12 17:40	1311	KO	
. el Extraorion							14.01	





### **Analytical Report**

Customer Sampl	e ID: SP-0	6						
Oxidor Sampl	e ID: 1210	0625-003			Matrix: S	olid		
Sample Rece	ived: 10/22	2/2012		Samp	ole Collected: 1	<b>0/22/2012</b>	12:30	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	81.7	%	10/22/12 20:00	Dry Weight	M.B.	
рН	0.1	0.1	8.3	pH Units	10/22/12 21:00	9045	M.B.	S-12
Metals								
Digested by method 3005A on 1	0/23/12 at 10:55							
TCLP Antimony	0.05	0.050	0.083	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Barium	0.05	0.050	0.083	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.052	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Lead	0.05	0.050	0.287	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	10/23/12 15:46	6020	K.O.	
TCLP Silver	0.01	0.010	ND	mg/L	10/23/12 15:46	6020	K.O.	
Digested by method 7470A on 1	0/23/12 at 10:15							
TCLP Mercury	0.001	0.001	ND	mg/L	10/23/12 17:12	7470A	T.C.	
<b>Total Petroleum Hyd</b>	drocarbons							
Prepared by method TX 1005 or	n 10/22/12 at 11:00							
TPH (C 6 to C12)	25	30.6	ND	mg/Kg	10/23/12 01:57	TX 1005	K.J.	
TPH (C12 to C28)	25	30.6	ND	mg/Kg	10/23/12 01:57	TX 1005	K.J.	
TPH (C28 to C35)	25	30.6	ND	mg/Kg	10/23/12 01:57	TX 1005	K.J.	
TPH (C6 to C35)	25	30.6	ND	mg/Kg	10/23/12 01:57	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			116	mg/Kg	100 mg/Kg	116%	70-130%	
o-Terphenyl			106	mg/Kg	100 mg/Kg	106%	70-130%	
Sample Prep								
TCI P Motals Extrac	tion							
TCL D Extraction					10/22/12 17:40	1011	KO	
ICLP EXILACIION					10/22/12 17:40	1311	ĸ.u.	





### Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
SP-04	12100625-001	Total Petroleum Hydrocarbons	TX 1005	1005_05129BS
		Dry Weight	Dry Weight	DW08326_S
		TCLP Mercury	7470A	MERC_10723_L
		TCLP Silver	6020	META_01046_L
		TCLP Nickel	6020	META_01046_L
		TCLP Lead	6020	META_01046_L
		TCLP Chromium	6020	META_01046_L
		TCLP Cadmium	6020	META_01046_L
		TCLP Berylium	6020	META_01046_L
		TCLP Barium	6020	META_01046_L
		TCLP Arsenic	6020	META_01046_L
		TCLP Antimony	6020	META_01046_L
		TCLP Selenium	6020	META_01046_L
		рН	9045	PH07315_S
SP-05	12100625-002	Total Petroleum Hydrocarbons	TX 1005	1005_05129BS
		Dry Weight	Dry Weight	DW08326_S
		TCLP Mercury	7470A	MERC_10723_L
		TCLP Chromium	6020	META_01046_L
		TCLP Antimony	6020	META_01046_L
		TCLP Arsenic	6020	META_01046_L
		TCLP Barium	6020	META_01046_L
		TCLP Lead	6020	META_01046_L
		TCLP Nickel	6020	META_01046_L
		TCLP Selenium	6020	META_01046_L
		TCLP Silver	6020	META_01046_L
		TCLP Cadmium	6020	META_01046_L
		TCLP Berylium	6020	META_01046_L
		рН	9045	PH07315_S
SP-06	12100625-003	Total Petroleum Hydrocarbons	TX 1005	1005_05129BS
		Dry Weight	Dry Weight	DW08326_S
		TCLP Mercury	7470A	MERC_10723_L
		TCLP Antimony	6020	META_01046_L
		TCLP Silver	6020	META_01046_L
		TCLP Selenium	6020	META_01046_L
		TCLP Nickel	6020	META_01046_L
		TCLP Lead	6020	META_01046_L
		TCLP Chromium	6020	META_01046_L
		TCLP Cadmium	6020	META_01046_L
		TCLP Berylium	6020	META_01046_L
		TCLP Arsenic	6020	META_01046_L
		TCLP Barium	6020	META_01046_L
		рН	9045	PH07315_S





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID DW08326_S								
Replicate	% Solids	84.8 %	84.0 %				0.9%	0-20%	
QCBatch	ID PH07315_S								
LCS	рН	7.0 pH Units		7 pH Units	100%	99-102%			
LCSD	рН	7.0 pH Units		7 pH Units	100%	99-102%	0.3%	0-25%	
Replicate	рН	8.2 pH Units	8.2 pH Units				0.1%	0-10%	
QCBatch	ID MERC_10723_L								
Blank	TCLP Mercury	ND mg/L							
LCS	TCLP Mercury	0.005 mg/L		0.005 mg/L	98%	85-115%			
LCSD	TCLP Mercury	0.005 mg/L		0.005 mg/L	105%	85-115%	4.6%	0-25%	
MS	TCLP Mercury	0.021 mg/L	ND	0.02 mg/L	103%	80-120%			
MSD	TCLP Mercury	0.022 mg/L	ND	0.02 mg/L	109%	80-120%	4.1%	0-25%	
QCBatch	ID META_01046_L								
Blank	TCLP Antimony	ND mg/L							
	TCLP Arsenic	ND mg/L							
	TCLP Barium	ND mg/L							
	TCLP Berylium	ND mg/L							
	TCLP Cadmium	ND mg/L							
	TCLP Chromium	ND mg/L							
	TCLP Lead	ND mg/L							
	TCLP Nickel	ND mg/L							
	TCLP Selenium	ND mg/L							
	TCLP Silver	ND mg/L							
LCS	TCLP Antimony	0.098 mg/L		0.1 mg/L	98%	85-115%			
	TCLP Arsenic	0.101 mg/L		0.1 mg/L	101%	85-115%			
	TCLP Barium	0.100 mg/L		0.1 mg/L	100%	85-115%			
	TCLP Berylium	0.100 mg/L		0.1 mg/L	100%	85-115%			
	TCLP Cadmium	0.100 mg/L		0.1 mg/L	100%	85-115%			
		0.099 mg/L		0.1 mg/L	99%	00-110%			
	TCLP Leau	0.096 mg/L		0.1 mg/L	90%	00-110%			
		0.101 mg/L		0.1 mg/L	10176	85 115%			
	TCLP Selenium	0.100 mg/L		0.1 mg/L	00%	85-115%			
	TCLP Antimony	0.099 mg/L		0.1 mg/L	100%	85-115%	2 1%	0-20%	
LUGD		0.100 mg/L		0.1 mg/L	100%	85-115%	1 3%	0-20%	
	TCLP Barium	0.102 mg/L		0.1 mg/L	102%	85-115%	2.1%	0-20%	
	TCLP Bendium	0.102 mg/L		0.1 mg/L	08%	85-115%	2.170	0-20%	
		0.030 mg/L		0.1 mg/L	102%	85-115%	2.5%	0-20%	
		0.102  mg/L 0.100 mg/l		0.1 mg/L	102 /0	85-115%	0.8%	0-20%	
	TCLPLead	0.100 mg/L		0.1 mg/L	99%	85-115%	2.6%	0-20%	
		0.000 mg/L		0.1 mg/L	102%	85-115%	1.0%	0-20%	
	TCI P Selenium	0.102 mg/L		0.1 mg/L	102%	85-115%	1.2%	0-20%	
	TCLP Silver	0.101 mg/L		0.1 mg/L	101%	85-115%	2 1%	0-20%	
		0.101 mg/L		0.1 mg/∟	10170	00-11070	2.170	0 20 /0	





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID META_01046_L								
MS	TCLP Antimony	0.622 mg/L	0.116 mg/L	0.5 mg/L	101%	80-120%			
	TCLP Arsenic	0.543 mg/L	ND	0.5 mg/L	109%	80-120%			
	TCLP Barium	0.652 mg/L	0.137 mg/L	0.5 mg/L	103%	80-120%			
	TCLP Berylium	0.497 mg/L	ND	0.5 mg/L	99%	80-120%			
	TCLP Cadmium	0.761 mg/L	0.267 mg/L	0.5 mg/L	99%	80-120%			
	TCLP Chromium	0.510 mg/L	ND	0.5 mg/L	102%	80-120%			
	TCLP Lead	13.1 mg/L	12.5 mg/L	0.5 mg/L	120%	80-120%			
	TCLP Nickel	0.564 mg/L	ND	0.5 mg/L	113%	80-120%			
	TCLP Selenium	0.501 mg/L	ND	0.5 mg/L	100%	80-120%			
	TCLP Silver	0.491 mg/L	ND	0.5 mg/L	98%	80-120%			
MSD	TCLP Antimony	0.615 mg/L	0.116 mg/L	0.5 mg/L	100%	80-120%	1.2%	0-20%	
	TCLP Arsenic	0.547 mg/L	ND	0.5 mg/L	109%	80-120%	0.7%	0-20%	
	TCLP Barium	0.652 mg/L	0.137 mg/L	0.5 mg/L	103%	80-120%	0.1%	0-20%	
	TCLP Berylium	0.494 mg/L	ND	0.5 mg/L	99%	80-120%	0.7%	0-20%	
	TCLP Cadmium	0.756 mg/L	0.267 mg/L	0.5 mg/L	98%	80-120%	0.6%	0-20%	
	TCLP Chromium	0.495 mg/L	ND	0.5 mg/L	99%	80-120%	2.9%	0-20%	
	TCLP Lead	13.1 mg/L	12.5 mg/L	0.5 mg/L	115%	80-120%	0.2%	0-20%	
	TCLP Nickel	0.546 mg/L	ND	0.5 mg/L	109%	80-120%	3.2%	0-20%	
	TCLP Selenium	0.509 mg/L	ND	0.5 mg/L	102%	80-120%	1.6%	0-20%	
	TCLP Silver	0.491 mg/L	ND	0.5 mg/L	98%	80-120%	0.0%	0-20%	
QCBatc	hID 1005_05129BS								
Blank	TPH (C 6 to C12)	ND mg/Kg							
	TPH (C12 to C28)	ND mg/Kg							
	TPH (C28 to C35)	ND mg/Kg							
	TPH (C6 to C35)	ND mg/Kg							
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	123 mg/Kg		100 mg/Kg	123%	70-130%			
	o-Terphenyl	112 mg/Kg		100 mg/Kg	112%	70-130%			
LCS	TPH (C6 to C35)	115 mg/Kg		100 mg/Kg	115%	75-125%			
Surro	gate	Result		Spike Conc	Recovery	Rec Limits			
	1-chlorooctane	120 mg/Kg		100 mg/Kg	120%	70-130%			
	o-Terphenyl	108 mg/Kg		100 mg/Kg	108%	70-130%			
LCSD	TPH (C6 to C35)	120 mg/Kg		100 mg/Kg	120%	75-125%	4.3%	0-20%	
Surro	qate	Result		Spike Conc	Recovery	Rec Limits			
	1-chlorooctane	122 mg/Kg		100 mg/Kg	122%	70-130%			
	o-Terphenvl	114 ma/Ka		100 ma/Ka	114%	70-130%			
MS	TPH (C6 to C35)	119 ma/Ka	ND	100 mg/Kg	119%	75-125%			
Surro	aate	Result		Spike Conc	Recovery	Rec Limits			
54.10	1-chlorooctane	121 ma/Ka		100 mg/Kg	121%	70-130%			
	o-Terphenyl	115 mg/Kg		100 mg/Kg	115%	70-130%			
MSD		121 mg/Kg	ND	100 mg/Kg	121%	75-125%	1 7%	0-20%	
WOD	111 (00 10 035)	12 i iliy/ny	ND	i oo mg/rxg	121/0	10-12070	1.1 /0	0-20 /0	





### **QC Summary**

		Reference			Rec		RPD	
QC Type Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatchID 1005_05129BS								
Surrogate	Result		Spike Conc	Recovery	Rec Limits			
1-chlorooctane	122 mg/Kg		100 mg/Kg	122%	70-130%			
o-Terphenyl	106 mg/Kg		100 mg/Kg	106%	70-130%			





## **Case Narrative**

Project Name:	Retaining Wall
D-1	Elevated reporting limit(s) due to dilution. Dilution resulted from sample matrix interference, high target analyte(s), high non- target analyte(s) or a combination thereof.
S-12	Sample should be analyzed as soon as possible and preferably at the time of collection.
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





## **Sample Preservation Verification**

### Project Name: Retaining Wall

Receipt temp: 2 Receipt method: C	.7 °C on Ice client										
Custody seal intact: N	lot Present		All samples / labels received intact: Yes								
Customer Sample ID:	SP-04		Collected By: Nick Foreman								
Oxidor Sample ID:	12100625-001		Collector Affiliation: W&M Environmental Group, Inc								
Collected:	10/22/12 12:20		Matrix: S	olid							
<u>Bottle Type</u> 4 oz Glass Ja	r 3	Collection Method	Parts / Interval F	Indicated Preservation Temp	<u>рН</u> -						
Customer Sample ID:	SP-05		Collected By: N	lick Foreman							
Oxidor Sample ID:	12100625-002		Collector Affiliation: W	&M Environ	mental Group, Inc.						
Collected:	10/22/12 12:25		Matrix: S	olid	, , , , , , , , , , , , , , , , , , ,						
<u>Bottle Type</u> 4 oz Glass Ja	r 3	Collection Method Composite	Parts / Interval F	Indicated Preservation Temp	<u>рН</u> -						
Customer Sample ID:	SP-06		Collected By: N	ick Foreman							
Oxidor Sample ID:	12100625-003		Collector Affiliation: W	&M Environ	mental Group, Inc.						
Collected:	10/22/12 12:30		Matrix: S	olid	• *						
<u>Bottle Type</u> 4 oz Glass Ja	r 3	Collection Method Composite	<u>Parts / Interval</u> <u>F</u>	Indicated Preservation Temp	<u>рН</u> -						

Sample conditions at time of receipt at laboratory verified in part or in whole by:

L.J.





## Chain of Custody

### PROJECT DESCRIPTION: Retaining Wall

Send Report To				Proi	ert/	Reny	ort Inf	orma	ation											
Company Name	E. U. G.			Circ	le Re	ques	ted 1	Furn .	Arou	nd Tì	me (L	ess th	ian 2	Day	s must	be ver	ified wi	th lab)		
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# **OXIDOR Laboratory Review Checklist Cover Page**

# Project Name: 112.052.003 Retaining Wall

## 7471 South Fifth Street, Frisco, TX

### OXIDOR Job Number: 12110104 W&M Environmental Group, Inc.

### This data package consists of:

- X This signature page, the laboratory review checklist, and the following reportable data:
  - X R1 Field chain-of-custody documentation;
  - X R2 Sample identification cross-reference;
  - **R3** Test reports (analytical data sheets) for each environmental sample that includes:
    - a) Items consistent with TNI Standard Module 2, Section 5.10
      - b) dilution factors,
      - c) preparation methods,
      - d) cleanup methods, and
      - e) if required for the project, tentatively identified compounds (TICs);
  - **XR4** Surrogate recovery data including:
    - a) Calculated recovery (%R), and
    - b) The laboratory's surrogate QC limits;
  - XR5 Test reports/summary forms for blank samples;
  - **XR6** Test reports/summary forms for laboratory control samples (LCSs) including:
    - a) LCS spiking amounts,
    - b) Calculated %R for each analyte, and
    - c) The laboratory's LCS QC limits;
  - **XR7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
    - a) Samples associated with the MS/MSD clearly identified,
    - b) MS/MSD spiking amounts,
    - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
    - d) Calculated %Rs and relative percent differences (RPDs), and
    - e) The laboratory's MS/MSD QC limits;
  - **XR8** Laboratory analytical duplicate (if applicable) recovery and precision:
    - a) the amount of analyte measured in the duplicate,
    - b) the calculated RPD, and
    - c) the laboratory's QC limits for analytical duplicates;
  - X R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
  - X **R10** Other problems or anomalies.
- X The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.
- **Release Statement**: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Charles Brungardt

Name

NON R.	
Cat 12 J-	President
Signature 🔾	Official Title

November 7, 2012 Date



## Laboratory Review Checklist: Reportable Data

Laborat	orv Nar	ne: OXIDOR Laboratories LLC	Date: November 7 2012	-			-	
Project	Name:	112 052 003 Retaining Wall	oratory Job Number: 12110104 W&M F	nviro	nmer	ntal G	roup	Inc
Review	er Nam	e: James A. Narens, III QC	Batch Number(s): See Cross-reference Lis	st			roup,	
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	$NR^4$	ER# <sup>5</sup>
R1	OI	Chain-of-Custody (C-O-C)			-			
		Did samples meet the laboratory's standard conditions of sample	acceptability upon receipt?	Х				
		Were all departures from standard conditions described in an exc	eption report?			Х		
R2	OI	Sample Quality Control (QC) and identification						
		Are all field sample ID numbers cross-referenced to the laboratory	y ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the correspond	ing QC data?	Х				
R3	IO	Test reports						
		Were all samples prepared and analyzed within holding times?			Χ			ER#1
		Other than those results < MDL, were all other raw values bracket	ted by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or supervisor?		Х				
		Were sample quantitation limits reported for all analytes not detect	sted?	Х				
		Were all results for soil and sediment samples reported on a dry w	veight basis?	Χ				
		Were % moisture (or solids) reported for all soil and sediment san	nples?	Х				
	-	If required for the project, TICs reported?				Х		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extraction?		X				
D.5	01	Were surrogate recoveries in all samples within the laboratory QC	Climits?	X				
R5	OI	Test reports/summary forms for blank samples		V				
		Were appropriate type(s) of blanks analyzed?		×				
		Were blanks analyzed at the required frequency?	including proportion and if	^				
		applicable, cleanup procedures?	including preparation and, in	Х				
		Were blank concentrations < MQL?		Х				
R6	IO	Laboratory Control Samples (LCS)						
		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the entire analytical procedure, incl	uding prep and cleanup steps?	Х				
		Were LCSs analyzed at the required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory Q	C limits?	Х				
		Was the LCSD RPD within QC limits?		Х				
R7	IO	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data						
		Were the project/method specified analytes included in the MS an	nd MSD?	Х				
		Were MS/MSD analyzed at the appropriate frequency?		Х				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC	limits?		Χ			ER#2
		Were MS/MSD RPDs within laboratory QC limits?		Х				
<b>R8</b>	IO	Analytical duplicate data						
		Were appropriate analytical duplicates analyzed for each matrix?	-	X				
		Were analytical duplicates analyzed at the appropriate frequency	?	X				
DO	01	Were RPDs or relative standard deviations within the laboratory C	QC limits?	Х				
R9	OI	Method Quantitation Limits (MQLs)		X				
		Are the MQLs for each method analyte included in the laboratory	data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-z	ero calibration standard?	X				
		Are unaujusted MQLs included in the laboratory data package?	poratory's conshility to detect the	~				
		COCs at the MQL used to calculate the SQLs?	boratory's capability to detect the	Х				
<b>R10</b>	OI	Other problems/anomalies						
		Are all known problems/anomalies/special conditions noted in this	s LRC and ER?	Х				
		Is the laboratory NELAC-accredited under the Texas Laboratory A analytes, matrices, and methods associated with this LRC?	Accreditation Program for all	Х				
		Was applicable and available technology used to lower the SQL to effects on the sample results?	o minimize any matrix interference	х				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified

by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



## Laboratory Review Checklist: Supporting Data

Laborate	ory Nar	ne: OXIDOR Laboratories, LLC	LRC Date: November 7, 2012								
Project I	Name:	112.052.003 Retaining Wall	Laboratory Job Number: 12110104 W&N	/I Enviro	nme	ntal G	roup,	Inc.			
Reviewe	er Name	e: James A. Narens, III	QC Batch Number(s): See Cross-reference	List							
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	$NA^3$	$NR^4$	ER# <sup>5</sup>			
<b>S1</b>	OI	Initial calibration (ICAL)									
		Were response factors and/or relative response factors for ea	ach analyte within QC limits?	Х							
		Were percent RSDs or correlation coefficient criteria met?		Х							
		Was the number of standards recommended in the method u	sed for all analytes?	Х							
		Were all points generated between the lowest and highest sta	andard used to calculate the curve?	Х							
		Are ICAL data available for all instruments used?		Х							
		Has the initial calibration curve been verified using an approp	riate second source standard?	Х							
S2	OI	Initial / continuing calibration verification (ICV / CCV) and	I continuing calibration blanks (CCB)								
		Was the CCV analyzed at the method required frequency?		Х							
		Were percent differences for each analyte within the method-	required QC limits?	Х							
		Was the ICAL curve verified for each analyte?		X							
		Was the absolute value of the analyte concentration in the inc	organic CCB < MDL?	Х							
<b>S3</b>	0	Mass spectral tuning									
		Was the appropriate compound for the method used for tunin	g?	Х							
		Were ion abundance data within the method-required QC lim	its?	Х							
S4	0	Internal Standards (IS)									
		Were IS area counts and retention times within the method-re	equired QC limits?	Х							
S5	OI	Raw data (TNI Standard Module 2, Section 5.10)									
		Were the raw data (for example, chromatograms, spectral da	ta) reviewed by an analyst?	Х							
		Were data associated with manual integrations flagged on the	e raw data?	Х							
<b>S6</b>	0	Dual column confirmation									
		Did dual column confirmation results meet the method-require	ed QC?			Х					
<b>S7</b>	0	Tentatively Identified Compounds (TICs)									
		If TICs were requested, were the mass spectra and TIC data	subject to appropriate checks?			Х					
<b>S8</b>	Ι	Interference Check Sample (ICS) results - Metals									
		Were percent recoveries within the method QC limits?		X							
<b>S9</b>	Ι	Serial dilutions, post digestion spikes, and method of sta	Indard additions - Metals								
		Were percent differences, recoveries, and the linearity within	the QC limits specified in the method?	X							
<b>S10</b>	OI	Method Detection Limit (MDL) studies									
		Was a MDL study performed for each reported analyte?		X							
		Is the MDL either adjusted or supported by the analysis of DC	CSs?	X							
S11	IO	Proficiency test reports									
~		Was the laboratory's performance acceptable on the applicat	ble proficiency tests or evaluation studies?	X							
S12	OI	Standards documentation									
G10		Are all standards used in the analysis NIST-traceable or obta	ined from other appropriate sources?	X							
<u>813</u>	OI	Compound/analyte identification procedures		X							
<b>G14</b>	01	Are the procedures for compound/analyte identification docur	nented?	X							
814	01	Demonstration of Capability (DOC)	Desition 4.00								
		was DOC conducted consistent with TNI Standard Module 4	, Section 1.6?	X							
C1 -	OL	is documentation of the analyst's competency up-to-date and	on file?	X							
815	01	verification/validation documentation for methods (TNI S	trandard Module 4, Section 1.5)								
616	OT	Are all methods used to generate the data documented, verification of the second secon	led, and validated, where applicable?	X				_			
516	01	Laboratory Standard Operating Procedures (SOPs)		v							
	1 Iter	Are laboratory SOPs current and on file for each method perf	Ormed?		iad						

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

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3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



	Laboratory Review Checklist: Exception Reports											
Laborator	y Name: OXIDOR Laboratories, LLC	LRC Date: November 7, 2012										
Project Na	ame: 112.052.003 Retaining Wall	Laboratory Job Number: 12110104 W&M Environmental Group, Inc.										
Reviewer	Name: James A. Narens, III	QC Batch Number(s): See Cross-reference List										
ER# <sup>1</sup>	<sup>1</sup> DESCRIPTION											
ER#1	For pH, samples should be analyzed as soon as possible and preferably at the time of collection for Oxidor Sample ID's 12110104-001 and -002.											
ER#2	Metals MS and MSD percent recoveries of Selenium for QC Batch ID META_04546_L (Oxidor Sample ID 12110105-001) were below Oxidor QC limits.											

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked on the LRC)





Wednesday, November 07, 2012

W&M Environmental Group, Inc. Frank Clark 906 E. 18th, Suite 100 Plano, TX 75074 Tel: (972) 516-0300 Fax: (972) 516-4145

Re: Project Name: Retaining Wall Project Number: 112.052.003 Project Location: 7471 South Fifth Street, Frisco, TX

Oxidor received 2 solid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
12110104-001	SP-07	Solid	11/5/2012 09:00	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons
12110104-002	SP-08	Solid	11/5/2012 09:00	Dry Weight, pH, TCLP Antimony, TCLP Arsenic, TCLP Barium, TCLP Berylium, TCLP Cadmium, TCLP Chromium, TCLP Lead, TCLP Mercury, TCLP Metals Extraction, TCLP Nickel, TCLP Selenium, TCLP Silver, Total Petroleum Hydrocarbons

Respectfully submitted,

Charles Brungardt President





## **Analytical Report**

Customer Sampl	e ID: SP-0	7						
Oxidor Sampl	le ID: 1211	0104-001			Matrix: S	olid		
Sample Rece	ived: 11/5/2	2012		Samp	ole Collected: 1	1/5/2012 0	9:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	84.8	%	11/05/12 15:25	Dry Weight	J.H.	
рН	0.1	0.1	9.3	pH Units	11/05/12 18:00	9045	M.B.	S-12
Metals								
Digested by method 3005A on 1	1/06/12 at 09:45							
TCLP Antimony	0.05	0.050	0.122	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Barium	0.05	0.050	0.454	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.496	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Lead	0.05	0.050	1.21	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	11/06/12 14:34	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	11/06/12 14:34	6020	K.O.	*
TCLP Silver	0.01	0.010	ND	mg/L	11/06/12 14:34	6020	K.O.	
Digested by method 7470A on 1	1/06/12 at 09:35			-				
TCLP Mercury	0.001	0.001	ND	mg/L	11/06/12 17:02	7470A	T.C.	
<b>Total Petroleum Hy</b>	drocarbons							
Prepared by method TX 1005 or	n 11/05/12 at 10:00							
TPH (C 6 to C12)	25	29.5	ND	mg/Kg	11/05/12 14:57	TX 1005	K.J.	
TPH (C12 to C28)	25	29.5	ND	mg/Kg	11/05/12 14:57	TX 1005	K.J.	
TPH (C28 to C35)	25	29.5	ND	mg/Kg	11/05/12 14:57	TX 1005	K.J.	
TPH (C6 to C35)	25	29.5	ND	mg/Kg	11/05/12 14:57	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			88.7	mg/Kg	100 mg/Kg	89%	70-130%	
o-Terphenyl			87.4	mg/Kg	100 mg/Kg	87%	70-130%	
Sample Pren								
TCI D Motole Evtron	tion							
	,000					1011		
ICLP Extraction					11/05/12 15:45	1311	H.B.	





### **Analytical Report**

Customer Sampl	e ID: SP-0	8						
Oxidor Sampl	le ID: 1211	0104-002			Matrix: S	olid		
Sample Rece	ived: 11/5/2	2012		Samp	ole Collected: 1	1/5/2012 0	9:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
% Solids	0.1	0.1	85.0	%	11/05/12 15:25	Dry Weight	J.H.	
рН	0.1	0.1	9.3	pH Units	11/05/12 18:00	9045	M.B.	S-12
Metals								
Digested by method 3005A on 1	1/06/12 at 09:45							
TCLP Antimony	0.05	0.050	0.126	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Arsenic	0.05	0.050	ND	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Barium	0.05	0.050	0.434	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Berylium	0.05	0.050	ND	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Cadmium	0.01	0.010	0.468	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Chromium	0.05	0.050	ND	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Lead	0.05	0.050	0.635	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Nickel	0.05	0.050	ND	mg/L	11/06/12 14:40	6020	K.O.	
TCLP Selenium	0.05	0.050	ND	mg/L	11/06/12 14:40	6020	K.O.	*
TCLP Silver	0.01	0.010	ND	mg/L	11/06/12 14:40	6020	K.O.	
Digested by method 7470A on 1	1/06/12 at 09:35			-				
TCLP Mercury	0.001	0.001	ND	mg/L	11/06/12 17:04	7470A	T.C.	
<b>Total Petroleum Hy</b>	drocarbons							
Prepared by method TX 1005 or	n 11/05/12 at 10:00							
TPH (C 6 to C12)	25	29.4	ND	mg/Kg	11/05/12 15:52	TX 1005	K.J.	
TPH (C12 to C28)	25	29.4	ND	mg/Kg	11/05/12 15:52	TX 1005	K.J.	
TPH (C28 to C35)	25	29.4	ND	mg/Kg	11/05/12 15:52	TX 1005	K.J.	
TPH (C6 to C35)	25	29.4	ND	mg/Kg	11/05/12 15:52	TX 1005	K.J.	
Surrogate			Result	Units	Spike Conc	Recovery	Rec Limits	
1-chlorooctane			88.3	mg/Kg	100 mg/Kg	88%	70-130%	
o-Terphenyl			87.5	mg/Kg	100 mg/Kg	88%	70-130%	
Sample Pren								
TCI D Motole Evtron	stion							
					44/05/40 45.45	4044		
ICLP Extraction					11/05/12 15:45	1311	H.B.	





### Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
SP-07	12110104-001	Total Petroleum Hydrocarbons	TX 1005	1005_05729AS
		Dry Weight	Dry Weight	DW09726_S
		TCLP Mercury	7470A	MERC_13023_L
		TCLP Antimony	6020	META_04546_L
		TCLP Arsenic	6020	META_04546_L
		TCLP Barium	6020	META_04546_L
		TCLP Berylium	6020	META_04546_L
		TCLP Cadmium	6020	META_04546_L
		TCLP Chromium	6020	META_04546_L
		TCLP Lead	6020	META_04546_L
		TCLP Nickel	6020	META_04546_L
		TCLP Selenium	6020	META_04546_L
		TCLP Silver	6020	META_04546_L
		рН	9045	PH08615_S
SP-08	12110104-002	Total Petroleum Hydrocarbons	TX 1005	1005_05729AS
		Dry Weight	Dry Weight	DW09726_S
		TCLP Mercury	7470A	MERC_13023_L
		TCLP Antimony	6020	META_04546_L
		TCLP Arsenic	6020	META_04546_L
		TCLP Barium	6020	META_04546_L
		TCLP Berylium	6020	META_04546_L
		TCLP Cadmium	6020	META_04546_L
		TCLP Chromium	6020	META_04546_L
		TCLP Lead	6020	META_04546_L
		TCLP Nickel	6020	META_04546_L
		TCLP Selenium	6020	META_04546_L
		TCLP Silver	6020	META_04546_L
		pН	9045	PH08615_S





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID DW 09726	S							
Replicate	% Solids	- 84.3 %	84.8 %				0.6%	0-20%	
QCBatch	ID PH08615_	S							
LCS	pН	7.0 pH Units		7 pH Units	100%	99-102%			
LCSD	рН	7.0 pH Units		7 pH Units	100%	99-102%	0.0%	0-25%	
Replicate	рН	9.3 pH Units	9.3 pH Units				0.0%	0-10%	
QCBatch	ID MERC_13023	_L							
Blank	TCLP Mercury	ND mg/L							
LCS	TCLP Mercury	0.005 mg/L		0.005 mg/L	103%	85-115%			
LCSD	TCLP Mercury	0.005 mg/L		0.005 mg/L	106%	85-115%	6.2%	0-25%	
MS	TCLP Mercury	0.022 mg/L	ND	0.02 mg/L	110%	80-120%			
MSD	TCLP Mercury	0.022 mg/L	ND	0.02 mg/L	110%	80-120%	0.1%	0-25%	
QCBatch	ID META_04546_	L							
Blank	TCLP Antimony	ND mg/L							
	TCLP Arsenic	ND mg/L							
	TCLP Barium	ND mg/L							
	TCLP Berylium	ND mg/L							
	TCLP Cadmium	ND mg/L							
	TCLP Chromium	ND mg/L							
	TCLP Lead	ND mg/L							
	TCLP Nickel	ND mg/L							
	TCLP Selenium	ND mg/L							
	TCLP Silver	ND mg/L							
LCS	TCLP Antimony	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Arsenic	0.104 mg/L		0.1 mg/L	104%	85-115%			
	TCLP Barium	0.100 mg/L		0.1 mg/L	100%	85-115%			
	TCLP Berylium	0.101 mg/L		0.1 mg/L	101%	85-115%			
	TCLP Cadmium	0.105 mg/L		0.1 mg/L	105%	85-115%			
	TCLP Chromium	0.104 mg/L		0.1 mg/L	104%	85-115%			
	TCLP Lead	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Nickel	0.103 mg/L		0.1 mg/L	103%	85-115%			
	TCLP Selenium	0.104 mg/L		0.1 mg/L	104%	85-115%			
	TCLP Silver	0.104 mg/L		0.1 mg/L	104%	85-115%			
LCSD	TCLP Antimony	0.099 mg/L		0.1 mg/L	99%	85-115%	4.1%	0-20%	
	TCLP Arsenic	0.102 mg/L		0.1 mg/L	102%	85-115%	2.1%	0-20%	
	TCLP Barium	0.096 mg/L		0.1 mg/L	96%	85-115%	3.7%	0-20%	
	TCLP Berylium	0.098 mg/L		0.1 mg/L	98%	85-115%	3.4%	0-20%	
	TCLP Cadmium	0.101 mg/L		0.1 mg/L	101%	85-115%	4.2%	0-20%	
	ICLP Chromium	0.100 mg/L		0.1 mg/L	100%	85-115%	4.0%	0-20%	
	ICLP Lead	0.099 mg/L		0.1 mg/L	99%	85-115%	4.3%	0-20%	
	ICLP Nickel	0.101 mg/L		0.1 mg/L	101%	85-115%	1.8%	0-20%	
	ICLP Selenium	0.101 mg/L		0.1 mg/L	101%	85-115%	2.5%	0-20%	
	TCLP Silver	0.100 mg/L		0.1 mg/L	100%	85-115%	3.5%	0-20%	





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID META_04546_L								
MS	TCLP Antimony	0.530 mg/L	ND	0.5 mg/L	106%	80-120%			
	TCLP Arsenic	0.527 mg/L	ND	0.5 mg/L	106%	80-120%			
	TCLP Barium	0.848 mg/L	0.368 mg/L	0.5 mg/L	96%	80-120%			
	TCLP Berylium	0.487 mg/L	ND	0.5 mg/L	98%	80-120%			
	TCLP Cadmium	0.506 mg/L	ND	0.5 mg/L	101%	80-120%			
	TCLP Chromium	0.496 mg/L	ND	0.5 mg/L	99%	80-120%			
	TCLP Lead	0.480 mg/L	ND	0.5 mg/L	96%	80-120%			
	TCLP Nickel	0.540 mg/L	ND	0.5 mg/L	108%	80-120%			
	TCLP Selenium	0.347 mg/L	0.078 mg/L	0.5 mg/L	54%	80-120%			Q-7
	TCLP Silver	0.495 mg/L	ND	0.5 mg/L	99%	80-120%			
MSD	TCLP Antimony	0.521 mg/L	ND	0.5 mg/L	104%	80-120%	1.6%	0-20%	
	TCLP Arsenic	0.526 mg/L	ND	0.5 mg/L	105%	80-120%	0.2%	0-20%	
	TCLP Barium	0.845 mg/L	0.368 mg/L	0.5 mg/L	95%	80-120%	0.4%	0-20%	
	TCLP Berylium	0.480 mg/L	ND	0.5 mg/L	96%	80-120%	1.4%	0-20%	
	TCLP Cadmium	0.500 mg/L	ND	0.5 mg/L	100%	80-120%	1.1%	0-20%	
	TCLP Chromium	0.480 mg/L	ND	0.5 mg/L	96%	80-120%	3.4%	0-20%	
	TCLP Lead	0.480 mg/L	ND	0.5 mg/L	96%	80-120%	0.0%	0-20%	
	TCLP Nickel	0.538 mg/L	ND	0.5 mg/L	108%	80-120%	0.3%	0-20%	
	TCLP Selenium	0.316 mg/L	0.078 mg/L	0.5 mg/L	48%	80-120%	9.4%	0-20%	Q-7
	TCLP Silver	0.492 mg/L	ND	0.5 mg/L	98%	80-120%	0.7%	0-20%	
QCBatc	hID 1005_05729AS								
Blank	TPH (C 6 to C12)	ND mg/Kg							
	TPH (C12 to C28)	ND mg/Kg							
	TPH (C28 to C35)	ND mg/Kg							
	TPH (C6 to C35)	ND mg/Kg							
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	90.6 mg/Kg		100 mg/Kg	91%	70-130%			
	o-Terphenyl	89.1 mg/Kg		100 mg/Kg	89%	70-130%			
LCS	TPH (C6 to C35)	89.9 mg/Kg		100 mg/Kg	90%	75-125%			
Surro	gate	Result		Spike Conc	Recovery	<b>Rec Limits</b>			
	1-chlorooctane	89.2 mg/Kg		100 mg/Kg	89%	70-130%			
	o-Terphenyl	88.3 mg/Kg		100 mg/Kg	88%	70-130%			
LCSD	TPH (C6 to C35)	92.9 mg/Kg		100 mg/Kg	93%	75-125%	3.3%	0-20%	
Surro	gate	Result		Spike Conc	Recovery	Rec Limits			
	1-chlorooctane	89.6 mg/Kg		100 mg/Kg	90%	70-130%			
	o-Terphenvl	88.2 ma/Ka		100 mg/Kg	88%	70-130%			
MS	TPH (C6 to C35)	98.6 mg/Kg	ND	100 mg/Kg	99%	75-125%			
Surro	gate	Result		Spike Conc	Recoverv	Rec Limits			
	1-chlorooctane	92.3 mg/Kg		100 mg/Kg	92%	70-130%			
	o-Terphenyl	90.8 ma/Ka		100 ma/Ka	91%	70-130%			
MSD	TPH (C6 to C35)	99.0 mg/Kg	ND	100 mg/Kg	90%	75-125%	0.4%	0-20%	
1000	1111 (00 10 033)	33.0 mg/Ng	ND	nuo my/rty	3370	10-120/0	0.470	0-2070	





### **QC Summary**

		Reference			Rec		RPD	
QC Type Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatchID 1005_05729AS								
Surrogate	Result		Spike Conc	Recovery	Rec Limits			
1-chlorooctane	93.4 mg/Kg		100 mg/Kg	93%	70-130%			
o-Terphenyl	93.7 mg/Kg		100 mg/Kg	94%	70-130%			





Draiget Normey Detaining Well

### **Case Narrative**

Project Name.	
Q-7	Recovery and/or RPD outside desirable limits.
S-12	Sample should be analyzed as soon as possible and preferably at the time of collection.
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5

This report is intended only for the use of W&M Environmental Group, Inc. and may contain information that is privileged and confidential. It may not be reproduced in full (or in part) without the expressed written permission of W&M Environmental Group, Inc. and Oxidor Laboratories, LLC.

Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





## **Sample Preservation Verification**

### Project Name: Retaining Wall

Receipt temp: 3.8 °C o	n Ice									
Receipt method: Client										
Custody seal intact: Not Pres	sent	All samples / labels received intact: Yes								
Customer Sample ID: SP-07		Collected By: Nick Foreman								
Oxidor Sample ID: 121101	04-001		Collector Affiliation:	W&M Enviror	nmental Group, Inc.					
Collected: 11/05/12	2 09:00	Matrix: Solid								
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	рH					
4 oz Glass Jar	3	Composite		Temp	-					
Customer Sample ID: SP-08			Collected By:	Nick Forema	n					
Oxidor Sample ID: 121101	04-002		Collector Affiliation:	W&M Enviro	nmental Group, Inc.					
Collected: 11/05/12	2 09:00		Matrix:	Solid						
				Indicated						
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>рН</u>					
4 oz Glass Jar	3	Composite		Temp	-					

Sample conditions at time of receipt at laboratory verified in part or in whole by:

A.B.





## Chain of Custody

## PROJECT DESCRIPTION: Retaining Wall

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# **OXIDOR Laboratory Review Checklist Cover Page**

# Project Name: 112.052.003 Retaining Wall

## 7471 South Fifth Street, Frisco, TX

### OXIDOR Job Number: 12110274 W&M Environmental Group, Inc.

### This data package consists of:

- X This signature page, the laboratory review checklist, and the following reportable data:
  - X R1 Field chain-of-custody documentation;
  - X R2 Sample identification cross-reference;
  - **R3** Test reports (analytical data sheets) for each environmental sample that includes:
    - a) Items consistent with TNI Standard Module 2, Section 5.10
      - b) dilution factors,
      - c) preparation methods,
      - d) cleanup methods, and
      - e) if required for the project, tentatively identified compounds (TICs);
  - X **R4** Surrogate recovery data including:
    - a) Calculated recovery (%R), and
    - b) The laboratory's surrogate QC limits;
  - XR5 Test reports/summary forms for blank samples;
  - **X R6** Test reports/summary forms for laboratory control samples (LCSs) including:
    - a) LCS spiking amounts,
    - b) Calculated %R for each analyte, and
    - c) The laboratory's LCS QC limits;
  - **XR7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
    - a) Samples associated with the MS/MSD clearly identified,
    - b) MS/MSD spiking amounts,
    - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
    - d) Calculated %Rs and relative percent differences (RPDs), and
    - e) The laboratory's MS/MSD QC limits;
  - **X R8** Laboratory analytical duplicate (if applicable) recovery and precision:
    - a) the amount of analyte measured in the duplicate,
    - b) the calculated RPD, and
    - c) the laboratory's QC limits for analytical duplicates;
  - X R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
  - X **R10** Other problems or anomalies.
- X The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.
- **Release Statement**: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Charles Brungardt

Name

NON R.	
at 12 J-	President
Signature 🔾	Official Title

November 12, 2012 Date



## Laboratory Review Checklist: Reportable Data

Laborat	ory Nar	ne: OXIDOR Laboratories LLC	C Date: November 12 2012	-	-	_		
Project	Name:	boratory Job Number: 12110274 W&M I	=nviro	nmer	ntal G	roup	Inc.	
Review	er Nam	e: James A. Narens, III QC	Batch Number(s): See Cross-reference Lis	st				
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	$NR^4$	ER# <sup>5</sup>
<b>R1</b>	OI	Chain-of-Custody (C-O-C)			-			
		Did samples meet the laboratory's standard conditions of sample	e acceptability upon receipt?	Х				
		Were all departures from standard conditions described in an ex	ception report?			Х		
R2	OI	Sample Quality Control (QC) and identification						
		Are all field sample ID numbers cross-referenced to the laborato	ry ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the correspond	ding QC data?	Х				
R3	IO	Test reports						
		Were all samples prepared and analyzed within holding times?		Х				
		Other than those results < MDL, were all other raw values bracke	eted by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or supervisor?		Х				
		Were sample quantitation limits reported for all analytes not dete	ected?	Х				
		Were all results for soil and sediment samples reported on a dry	weight basis?			Х		
		Were % moisture (or solids) reported for all soil and sediment sa	imples?			Х		
	-	If required for the project, TICs reported?				Х		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extraction?	<b>0</b> H + 0			X		
D.5	01	Were surrogate recoveries in all samples within the laboratory Q	C limits?			X		
R5	OI	Test reports/summary forms for blank samples		v				
		Were appropriate type(s) of blanks analyzed?		×				
		Were blanks analyzed at the required frequency?	including proportion and if	^				
		applicable, cleanup procedures?	, including preparation and, in	Х				
		Were blank concentrations < MQL?		х				
R6	IO	Laboratory Control Samples (LCS)						
		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the entire analytical procedure, inc	cluding prep and cleanup steps?	Х				
		Were LCSs analyzed at the required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory C	QC limits?	Х				
		Was the LCSD RPD within QC limits?		Х				
<b>R7</b>	IO	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data						
		Were the project/method specified analytes included in the MS a	and MSD?	Х				
		Were MS/MSD analyzed at the appropriate frequency?		Х				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC	limits?	Х				
		Were MS/MSD RPDs within laboratory QC limits?		Х				
<b>R8</b>	IO	Analytical duplicate data						
		Were appropriate analytical duplicates analyzed for each matrix?	?	X				
		Were analytical duplicates analyzed at the appropriate frequency	y?	X				
DO	01	Were RPDs or relative standard deviations within the laboratory	QC limits?	X				
К9	OI	Method Quantitation Limits (MQLs)	, data na aka na Q	v				
		Are the trigues for each method analyte included in the laboratory	/ uala package /					
		Do the MQLs correspond to the concentration of the lowest non-	zero calibration standard?	×				
		The unaujusted much included in the laboratory data package?	aboratory's capability to dotoct the	^				
		COCs at the MQL used to calculate the SQLs?	aboratory's capability to detect the	Х				
R10	OI	Other problems/anomalies						
		Are all known problems/anomalies/special conditions noted in thi	is LRC and ER?	Х				
		Is the laboratory NELAC-accredited under the Texas Laboratory analytes, matrices, and methods associated with this LRC?	Accreditation Program for all	х				
		Was applicable and available technology used to lower the SQL effects on the sample results?	to minimize any matrix interference	Х				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified

by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).


### Laboratory Review Checklist: Supporting Data

Laborate	ory Nar	ne: OXIDOR Laboratories, LLC	LRC Date: November 12, 2012									
Project I	Name:	112.052.003 Retaining Wall	Laboratory Job Number: 12110274 W&M Environmental Group, Inc.									
Reviewe	er Name	e: James A. Narens, III C	C Batch Number(s): See Cross-reference L	ist								
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	$NR^4$	ER#⁵				
<u>S1</u>	OI	Initial calibration (ICAL)										
		Were response factors and/or relative response factors for eac	h analyte within QC limits?	Х								
		Were percent RSDs or correlation coefficient criteria met?		Χ								
		Was the number of standards recommended in the method use	ed for all analytes?	Χ								
		Were all points generated between the lowest and highest star	ndard used to calculate the curve?	Χ								
		Are ICAL data available for all instruments used?		Χ								
		Has the initial calibration curve been verified using an appropria	ate second source standard?	Χ								
S2	OI	Initial / continuing calibration verification (ICV / CCV) and c	continuing calibration blanks (CCB)									
T		Was the CCV analyzed at the method required frequency?		X								
		Were percent differences for each analyte within the method-re	equired QC limits?	Х								
		Was the ICAL curve verified for each analyte?		X								
		Was the absolute value of the analyte concentration in the inor	ganic CCB < MDL?	Χ								
<b>S3</b>	0	Mass spectral tuning										
T		Was the appropriate compound for the method used for tuning	?			Χ						
		Were ion abundance data within the method-required QC limits	s?			Χ						
S4	0	Internal Standards (IS)										
		Were IS area counts and retention times within the method-req	quired QC limits?			Χ						
<b>S</b> 5	OI	Raw data (TNI Standard Module 2, Section 5.10)										
		Were the raw data (for example, chromatograms, spectral data	the raw data (for example, chromatograms, spectral data) reviewed by an analyst?									
		Were data associated with manual integrations flagged on the	raw data?	Х								
<b>S6</b>	0	Dual column confirmation										
	_	Did dual column confirmation results meet the method-required	d QC?			Х						
<b>S7</b>	0	Tentatively Identified Compounds (TICs)										
~ ~	-	If TICs were requested, were the mass spectra and TIC data s	ubject to appropriate checks?			Х						
<b>S8</b>	1	Interference Check Sample (ICS) results - Metals										
<i>a</i> .	-	Were percent recoveries within the method QC limits?		X								
S9	1	Serial dilutions, post digestion spikes, and method of stan	idard additions - Metals									
010	07	Were percent differences, recoveries, and the linearity within the	ne QC limits specified in the method?	X			_					
S10	OI	Method Detection Limit (MDL) studies										
		Was a MDL study performed for each reported analyte?		X								
011	01	Is the MDL either adjusted or supported by the analysis of DCS	58?	X								
811	01	Proticiency test reports										
610	OT	was the laboratory's performance acceptable on the applicable	e proticiency tests or evaluation studies?	×								
512	UI	Standards documentation										
\$12	OI	Are all standards used in the analysis NIS I traceable or obtain	ted from other appropriate sources?	×								
513	UI	Compound/analyte identification procedures		v								
S14	OL	Are the procedures for compound/analyte identification docume		^								
514	01	Wee DOC conducted consistent with TNI Stondard Madule 4.	Caption 1.62	v								
		le desumentation of the applysic commentancy up to date and										
S15	OL	Norification (or the analyst's competency up-to-date and c	on mer	^								
515	01	Are all mothede used to generate the date desumented used	anuaru Mouule 4, Section 1.3)	v								
\$16	OI	Are an memous used to generate the data documented, ventile	anu valiuateu, where applicable?	^								
510	01	Are laboratory SOPs current and on file for each method perfor	rmod?	v								
ļ	1 Iter	ALE INDUCTION SOFS CUTTER AND ON THE TOF EACH METHOD PERIOD	IIIEU ?	▲ identifi	ied							

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked).



	Laboratory Review Checklist: Exception Reports									
Laborator	Laboratory Name: OXIDOR Laboratories, LLC LRC Date: November 12, 2012									
Project Na	ame: 112.052.003 Retaining Wall	Laboratory Job Number:	12110274 W&M Environmental Group, Inc.							
Reviewer	Name: James A. Narens, III	QC Batch Number(s): See	Cross-reference List							
ER# <sup>1</sup>	DESCRIPTION									

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "No" or "NR" is checked on the LRC)





Monday, November 12, 2012

W&M Environmental Group, Inc. Frank Clark 906 E. 18th, Suite 100 Plano, TX 75074 Tel: (972) 516-0300 Fax: (972) 516-4145

Re: Project Name: Retaining Wall Project Number: 112.052.003 Project Location: 7471 South Fifth Street, Frisco, TX

Oxidor received 1 solid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	<u>Collected</u>	<u>Analysis</u>
12110274-001	SP-07	Solid	11/5/2012 09:00	TCLP Cadmium, TCLP Metals Extraction

Respectfully submitted,

Charles Brungardt President





### **Analytical Report**

#### Project Name: Retaining Wall

Customer Sample ID Oxidor Sample ID Sample Received	): <b>SP-0</b> ): 1211 d: 11/8/	<b>7</b> 0274-001 2012		Samp	Matrix: Solid ample Collected: 11/5/2012 09:00							
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags				
Sample Prep												
<b>TCLP Metals Extraction</b>	า											
TCLP Extraction					11/08/12 16:40	1311	H.B.					
Metals Digested by method 3005A on 11/09/1.	2 at 09:40											
TCLP Cadmium	0.01	0.010	0.335	mg/L	11/09/12 16:17	6020	K.O.					





#### Sample Cross Reference

#### Project Name: Retaining Wall

Customer ID:	Lab ID:	Test	Method	QCBatchID:
SP-07	12110274-001	TCLP Cadmium	6020	META_06046_L





#### **QC Summary**

#### Project Name: Retaining Wall

			Reference			Rec		RPD	<u> </u>
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ND META_06046_L								
Blank	TCLP Cadmium	ND mg/L							
LCS	TCLP Cadmium	0.103 mg/L		0.1 mg/L	103%	85-115%			
LCSD	TCLP Cadmium	0.102 mg/L		0.1 mg/L	102%	85-115%	1.1%	0-20%	
MS	TCLP Cadmium	0.850 mg/L	0.335 mg/L	0.5 mg/L	103%	80-120%			
MSD	TCLP Cadmium	0.833 mg/L	0.335 mg/L	0.5 mg/L	100%	80-120%	2.0%	0-20%	





#### **Case Narrative**

#### Project Name: Retaining Wall

ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





### **Sample Preservation Verification**

#### Project Name: Retaining Wall

Receipt temp: 3.8 °C on	lce								
Custody seal intact: Not Pres	ent	All samples / labels received intact: Yes							
Customer Sample ID: SP-07			Collected By: Nick Foreman						
Oxidor Sample ID: 1211027	4-001	Collector Affiliation: W&M Environmental Group, Inc.							
Collected: 11/05/12	09:00	Matrix: Solid							
<u>Bottle Type</u> 4 oz Glass Jar	Count 3	Collection Method Composite	Parts / Interval	Indicated <u>Preservation</u> Temp	<u>рН</u> -				

Sample conditions at time of receipt at laboratory verified in part or in whole by:

A.B.





### Chain of Custody

#### PROJECT DESCRIPTION: Retaining Wall

<b></b>	1825 East Plano Parkway, #10 Plano, TX 75074-8570 P: 972.424.6422 F: 972.424.6 customerservice@oxidor.com	60 6508		ACCREDI	ED 11	AG	CORL	214 CF	H114								Page	۔ ڊ	_ c	√f
Send Report To				Proj	ect /	Repo	ni In	oms	tion	nd Ti	me /	011	han	2 Do	VS m	ist he	verific	dwith	lah)	
WH	1 Environmental Group	,Inc		Circ	7-1	eques 10 Da	ys	•5-	7 Da	ys	R	USH	nan	2 Da 3-	4 Day	151 D0 /S	2	Days	(ab)	AS
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City Pla	Stap	X <sup>Zip</sup> 74	5074	Proj	ect L	ocati	on 74	J 71	<		4	54	1	Sh-	~+	4	54		$\tau$	x
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### Chain of Custody

PROJECT DESCRIPTION: Retaining Wall

Ashley Bishop				12/10274
From: Sent: To: Cc: Subject:	Nick Foreman [nforeman@v Thursday, November 08, 20 Homer Youngblood; Charles Frank Clark; COLEMAN, Va Exide sample SP-07 (12110	wh-m.com] 12 2:45 PM s Brungardt; CustomerS inessa (Frisco, TX) (Van 104-001)	ervice lessa.Coleman@n	a.exide.com)
Hi Charles and Homer	·,			
Can you please re-ru having issues with t	n the SP-07 sample col he 0.496 being so clos	llected on 11/5/12 se to the 0.5 cut-	for TCLP Cadm off.	ium. We are
We will need this AS	AP and Exide should be	e billed directly.		
Thanks.				
Nick Foreman Environmental Scient	ist II			
W&M Environmental Gr 906 East 18th Street (c) 972.509.9609 ( (c) 817.680.1417	oup, Inc. , Plano, Texas 75074 f) 972.516.4145			
Please don't print t	his e-mail unless you	really need to.		
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#### WASTE DISPOSAL MANIFESTS – STOCKPILED SOILS FROM TRENCH EXCAVATION

ATTACHMENT D

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Pie	ease print or type. (Foirm d	esigned for use on elite (12-pitch) typew	riter.)	2 Boost of 1.2 T	<u> </u>			For	m Approved. OMB No. 2050-003
	WASTE MANIFEST	TXD006451090	)	2. #age   01 3. t	mergency Respor (800)	15e Phone 424-930	o A. Manifest	Tracking N	14 14 14 14 14 14 14 14 14 14 14 14 14 1
	5. Generator's Name and M EXIDE T	ailing Address ECHNOLOGIES	******	Gen	erator's Site Addre	ss (if different t	han mailing addre	ess)	
	7471 \$ 5	TH ST							
	Generator's Phone:	1 1972)335-2121	·····						
	SET 8	Environmente	1 Ja				U.S. EPA ID	Number	IL2 981957236
	7. Transporter 2 Company f	lame					U.S. EPAIDI	Number	4727264
	8. Designated Facility Name	and Site Address							
	Earlitute Dhone (337)5	CHEMIC 7170 JOI 83-2169 SULPHU	AL WASTE N HN BRANNO R LA 70665	MANAGEMI IN RD.	ENT		U.S. EPAIDI	LAD	000777201
	9a. 9b. U.S. DOT Desc	iplion (including Proper Shipping Name, Haza	rd Class, ID Number,		10. Cont	ainers			
	HM and Packing Group	(if any))			No.	Туре	Quantity	12. Unit WL/Vol.	13. Waste Codes
TOR	X RQ NA	3077, NAZARDOU	SMASTR	, south			254	GA	DOOR DOLL
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	14. Special Handling Instruc ERG	lions and Additional Information			····		 Ra		
	IN CASE OF	EMERGENCY CONTACT	CHEMTRE	C 800-424-	B300. (VVM	CONTR		: // -/ :N&557	)
	DISCREPAN	ICIES CONTACT	*****		(972	1786	-544	6	
	15. GENERATOR'S/OFFE marked and labeled/pla	ROR'S CERTIFICATION: I hereby declare th carded, and are in all respects in proper cond	at the contents of this lition for transport acco	consignment are ful rding to applicable i	ly and accurately d International and na	lescribed above ational governm	e by the proper shi tental regulations.	ipping name. If export shi	, and are classified, packaged,
	I certify that the waste r	ninimization statement identified in 40 CFR 26	e terms of the aftached 52.27(a) (if I am a large	EPA Acknowledgm quantity generator	ent of Consent. I Or (b) (if I am a sn	nali quantity ger	nerator) is true,		
	C APIT LE	Typed Name		Signature	1. 1	A 16		1.1	Month Day Year
T'L -	16. International Shipments				and	LA N.	an	hu	11 14 12
RIN	Transporter signature (for ex	ports only):	·····		Date lea	ving U.S.:			
RTE	Transporter 1 Printed/Typed	Vame		Signature	27				Manih Dav Ma
OdSN		y Hokomb			Jain	Hole	m		Monun Day Year
ŢRΑ		10:10		Signature	0				Month Day Year
1	18. Discrepancy								<u>_</u>
	18a Discrepancy Indication 1	Space Quantity	Туре		Residue		Partial Reje	ection	Fuli Rejection
	XINIC	11.15-12			Manifest Reference	a Number			
ILITY	18b. Alternate Facility (or Ger	nerator)				in tranibor.	U.S. EPAID N	umber	
FAC	Facility's Phone:						1		
ATED	18c. Signature of Alternate Fr	icility (or Generator)	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			<b>I</b>		Month Day Year
SIGN	19. Hazardous Waste Report	Management Method Codes (i.e., codes for t	nazardous waste treate	nent disposal and	Poweling systems)				
ы́	1-1-2-	7(UD)2		3.	coreining pasteritis)	······	4.		
	20. Designated Facility Owne	r or Operator; Certification of receipt of bazar	dous malerials on some	thy the mentions		1 .0			
	Printed/Typed Name	ich 1Anni	und midentis covered	Signature	cept as noted in the	m 18a	<u> </u>		Mpnib Dav
¥ ₽PA	Form 8700-22 (Rev. 3-05)	BEOMOUS ADDITIONS are obsolate	ll	<u>HL</u>	$\mathcal{A}$	PA	~~~~~		11 15/7
	2. 20 EL (NOV. 0.00)			DESI	GNATEDE	ACHITYT	O DESHA	ATION S	STATE (IF REQUIRED)

Date Time	11/15/ 11:40:2 WASTE MANAGEMENT	Chemical Waste Management Data Error/Discrepancy Report	Page Program name CHEMICAL WASTE MANAGEMENT, INC.
	Report Initiation Date: 11/15/12 Five Day Resolution Period Begin Date	2: 11/16/12	171 70 афыя Варлоп Road 0348тмк Sulphur, LA 70665 (337) 583-2169
	Receiving Ticket: 000643915 Line # 3 Profile Number : 956103LA	1	Manifest : 009996407JJK
	Generator Name : EXIDE TECHNOLOGIES		Federal EPA ID#: TXD006451090
	City : FRISCO	State: TX	Zip Code : 75034-0005
	·	TYPE OF DISCREPANCY	

Manifest*	:	Weight*	:	Analytical* :
Drum Count*	1 States and the second se	LDR Form*	:	Physical St* : X

Problem (be specific): Physical State SD

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BULK WASTE MANIFESTED AS PROFILE 956103LA, SOIL FROM RETAINING WALL PROJECT FOR TREATMENT AT STABILIZATION. THE LOAD RECEIVED CONTAINS LARGE PIECES OF CUT UP THICK PLASTIC. WE CANNOT TREAT DEBRIS. WE CAN MACRO DEBRIS. \* IS THIS THE RIGHT PROFILE FOR THIS WASTE?

Efforts to resolve discrepancy: PER VANESSA COLEMAN/RICK CONNOR THE CORRECT PROFILE NUMBER IS LB5576. CHANGE THE PAPERWORK TO REFLECT THE CORRECTION.

Resolved: X Time In : 0:08:36 Authorized Signature

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Unresolved: Time Out : 0:11:33

Date Resolved: 11/15/12

\*\* END OF REPORT \*\*

Date Time	11/16 10:56: WASTE MANAGEMENT Report Initiation Date: 11/15/ Five Day Resolution Period Begi Receiving Ticket: 000643915 Lin Profile Number : LE5576 Generator Name : EXIDE TECHNOL City : FRISCO	Chemical Waste Management Data Error/Discrepancy Report 12 n Date: 11/16/12 e # 1 OGIES State: TX	Page : Program name CHEMICAL WASTE MANAGEMENT, INC. 7170 John Brannon Road Sulphur, LA 70665 (337) 583-2169 Manifest : 009996407JJK Federal EPA ID#: TXD006451090 Zip Code : 75034-0005
		TYPE OF DISCREPANCY	
	Manifest* : Drum Count* :	Weight* : X LDR Form* :	Analytical* : Physical St* :
	PTHERE IS MANIFESTE 25 YARDS. Efforts to resolve discrepancy:	A GREATER THAN 10% VOLUME DISCREPANCY. D FOR 20 YARDS; CWM'S VOLUME IS PER VANESSA COLEMAN OK TO USE CWM'S VOLUME OF 25 YARDS AND CHANGE THE PAPERWORK TO REFLECT ? CORRECTION.	гне
	Resolved: X Time In : 0:16:40 Authorized Signature	Unresolved: Time Out : 0:08:40 Date Resolved: 11/16/12	
** END	OF REPORT **		

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LINIFORM HAZARDOUS	Generator ID Number		2. Page 1 of 3. Eme	rgency Respon	se Phone	4. Manifes	t Tracking h	lumber	. ONIO NO. 21
WASTE MANIFEST	TXD0064510	90	1	(800)	424-930	o   00	<u>199</u> 9	9649	7 JJ
5. Generator's Name and Mailing / EXIDE TECH			Generat	or's Site Addre:	ss (if different t	han mailing addre	95S)		
7471 S 5TH	ST								
Generator's Phone:	(972)335-2121		1						
6. Transporter 1 Company Name	11			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		U.S. EPAID	Number		
7. Transporter 2 Company Name	maste M	anage	ment	the		4	000	0147	272
						0.3. EPA 92	Muttibe!		
8. Designated Facility Name and S	ite Address					U.S. EPA ID	Number		
	7170 J	OHN BRANNO	MANAGEMEN DN RD.	1			LAD	000777	201
Facility's Phone: (337)583-2	2169 SULPH	UK LA 70865				<u>, L</u>			
HM and Packing Group (if any	anciuding Proper Shipping Name, Ha ))	azard Class, ID Number,		10. Cont No.	ainers Type	11. Total Quantity	12. Unit Wt.Mol.	13.	Waste Codes
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14. Special Handling, Instructions a ERGS D1/171	nd Additional Information		C 800 424 03						
14. Special Hangling Instructions a ERGE-UT/171. IN CASE OF EM DISCREPANCIE	nd Additional Information	CT CHEMTRE	C 800-424-93	100. (WM (972	CONTR	ACT #:CO	CN4557	/) /)	
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8. Designated Facility Name and Site Address				U.S. EPAID	Number			
CHEMICAL WASTE MANAG		<u>ات</u>		U.S. EPA ID	Number		·····	
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FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

Name_Exide Technologies		Generating Location	Exite Tech	nologies	
Address PO Box 280		7471 South 5th	St: Frisco, T)	( 75034	·
Frisco TX 75034	·	State Gen. ID No3	0516		
Phone No <u>972 335-2121</u>		Gen. US EPA ID No.	TX:D00645	1090	
WASTE CODE PROFILE NUMBER	WAST	E DESCRIPTION		QUANTITY	UNITS
101011010-0-0-0-0	<del>Coñ, Concrate &amp;</del>	Col.	<u>-</u>		ـــــــــــــــــــــــــــــــــــــ
010121573151012 - 95-762-975		······································			
10101217131012121 9580417x	SOIL FRom 1	LETAINENS WAL	L	20105	¥
CODES: D = DRUM;	B = BAG; C = C/	ARTON P - POUND			
I hereby certify that the above listed material(s), is	s (are) not a hazardous wast	e as defined by 40 CER Part 261 a	r = rARD	S; 0 = O[HE]	R
each waste has been properly described, classifie	ed and packaged, and is in p	roper condition for transportation a	or any applicable according to appli	state law. That cable regulations.	
CARLELE, WEINEL	L Dr	9/11/12 /	Ja lal	1× c · li	1.
AUTHORIZED AGENT'S NA	AME (PRINT)	DATE	- Lander	SIGNATURE	-0
	TDAN	ICDADTER.			
		SPUHIEN			
GREEN SCA	PING	······································			
Iransporter's Name		Phone No(003)605	(81	(7) 5-77-9	9299
Address	HANDLEY EVENIO	ue Driver's name	Tuis ORA	0	
JUNY TATOME FORTI DAT	K, TX 76118	. Vehicle No	4/8/15		<u> </u>
I hereby certify that the above listed material was p	picked up at the Generator si	ite listed above and delivered with	Out incident to the		
9-11-12 TAQUE	' Au	9-11.12		disposal facility listed	Delow.
SHIPMENT DATE DRIVE	R'S SIGNATURE	DELIVERY DATE	Aq	MIVER'S SIGNATUR	3F
	DISPOS	AL FACILITY			
	l				
Site Name		Phone No (972)459	14)2		
Address 1000 \$ Railroad Street		twayle T	75067		
Permit No		Time 2:24PT	7	1 1	
hereby certify that the above listed platefial has be	een accepted and that inform			f-ff	$ \rightarrow $
-AKEE		9/11/2	is true and aceur	ate	
	(PRINT)	U DATE	V X s	IGNATURE	<u> </u>



FOR OFFICE USE ONLY

Customer Acc. No. \_\_\_\_\_ Ticket No. \_\_\_\_\_

### GENERATOR

NameStore Technologies		Generating Location	Exide Tect	inclogies			
Address PO Box 250		7471 South 5th St. Frisco, TX: 75034					
Elser IX 72053		State Gen ID No St	2510				
Phone No. 072 335 2121		Gen. US EPA ID No.	TXID00645	;090			
WASTE CODE PROFILE NUMBER	WASTE I	DESCRIPTION		QUANTITY	UNITS		
	tion, Jones & Con				V.		
0025319102 -9578297	<u> </u>						
1010121713101212 9580417X	SOTL FROM &	LETAINING L	NAU	Dends	 Y		
<b>CODES:</b> D = DRUM; I hereby certify that the above listed material(s), each waste has been properly described, classif	B = BAG; C = CAR is (are) not a hazardous waste as ied and packaged, and is in prope	TON; $P = POUND$ defined by 40 CFR Part 261 of r condition for transportation a	; $Y = YARE$ or any applicable according to app	0S; 0 = OTHE state law. That licable regulations.	R ils		
AUTHORIZED AGENTS IN	NAME (PRINT)	DATE		SIGNATURE			
CREEN SC Transporter's Name Address The formed to the second to the s	APTING 101 HANDLEJEDEN TH, TX TL 118 spicked up at the Generator site li LG, LA VER'S SIGNATURE	Phone No Driver's name Vehicle No sted above and delivered with  DELIVERY DATE	5 20 - (81 12 1. / 5 0 - 2 1. / 6 iout incident to th M	2) 577-9 An Late disposal facility lister ZILLA (J.J. DRIVER'S SIGNATU	7299 d below.		
	DISPOSAL	. FACILITY			5-7-72574258380927-7-7-2-7-7-7-		
Site Name CERCETER Address Address		Phone No. ((?7?)45 Lewicville	9 10 19 X 75057	<u>}</u>			
Permit No.		Time	1 AU	2pr-			
I hereby certify that the above listed material has	been accepted and that informating (PRINT)	DATE		SIGNATURE			



FOR OFFICE USE ONLY
Customer Acc. No. \_\_\_\_\_
Ticket No. \_\_\_\_\_

GENERATOR

# WMI 1250880

NameErkle Teurisologies	Ger	erating Location	olde Technologius	
Address PO Bex 200		7471 South 5th St;	Frisco, TX: 75034	
Frisco TV 7803/	Stat	e Gen ID No 305		
Phone No. 972 335-212	Ger	US EPA ID No.	X.0006451090	
WASTE CODE PROFILE NUMBER	WASTE DES	CRIPTION	QUANTITY	UNITS
	Ber, Cameric & Debile			Υ
10101215131910121 9578297				
10101217131012121 958041TX S	OIL FROM RETAI	work wall	20 vols	V
CODES: D = DRUM; B	= BAG; C = CARTON:	P = POUND: Y		0
I hereby certify that the above listed material(s), is (an	e) not a hazardous waste as defined	by 40 CFR Part 261 or a	ny applicable state law. That	
each waste has been propeny described, classified an	Id packaged, and is in proper condition	on for transportation acco	ording to applicable regulations.	
AUTHORIZED AGENT'S NAME	(PRINT)	HZ W	udell's cash	<u> </u>
			SIGNALURE	
	TRANSPOR	TER		
GREEN SLAPI	w6			
Transporter's Name	<u></u>	ne No	(817) 577-92	99
Address 2401 HA	INLEY EDENUTUR REPriv	er's name	uis OM	
FORT WORTH	7x 76/18 Vehi	icle No. <u>8 6 le</u>		
I hereby certify that the above listed material was pick	ed up at the Generator site listed abo	ove and delivered without	incident to the disposal facility liste	d below.
9-11-12 / name	Que	9-11-12	TAAMA QUA	
SHIPMENT DATE ' DRIVER'S	SIGNATURE -	DELIVERY DATE	DRIVER'S SIGNATI	JRE
	PIOSO AL PI			
	DISPOSAL FA	CILITY		
LEW EDF		10701/50 -	15.4.**	
Address 1800 S Rainbald Street	Pho	ne No.	75067	
Permit No.	Tim		21	
I hereby certify that the above isted material has been	accepted and that information press	anted on this document is	In and and and	
Trouc	Turn 1 A		True dito accutere.	
NAME /	(PRINT) DAT	<u></u>		
	· (			

White - Original · Canary - Transporter · Pink - Disposal Facility · Goldenrod - Generator



FOR OFFICE USE ONLY
Customer Acc. No. \_\_\_\_\_
Ticket No. \_\_\_\_\_

### GENERATOR

		Generating Location	XIDE TECHNOLOCIES
Address PC COM 250		7471 SOUTH FIFTH	ETREET, FRISCO TX 75018
ERECCI IN TEXA	<u></u>	_ State Gen. ID No. 3051	6
Phone No972 025-0101		Gen. US EPA ID No.	(0006451050
WASTE CODE PROFILE NUMBER	WASTI	E DESCRIPTION	QUANTITY UNITS
			Church Y
000217131012121 9580417X	SOIL FROM	n RRTAING WAL	
CODES: D = DRUM hereby certify that the above listed material(s each waste has been properly described, class CARLILE, DEUSEL AUTHORIZED AGENTS	A; B = BAG; C = CA ), is (are) not a hazardous waste sified and packaged, and is in pr CL (. NAME (PRINT)	ARTON; $P = POUND$ ; Y e as defined by 40 CFR Part 261 or any oper condition for transportation accor 13 - 1 - 12 Le DATE	= YARDS; 0 = OTHER y applicable state law. That ofing to applicable regulations. Maller Curticle SIGNATURE
Transporter's Name	HAN Hand ley Eder	Phone No.	817-577-9299 15 OKA
hereby certify that the above listed material w <u>IO-1-12</u> SHIPMENT DATE DR	as picked up at the Generator si	te listed above and delivered without ir $\frac{10-1-12}{\text{DELIVERY DATE}} \leq $	DRIVER'S STGNATURE
an a	DISPOSA	AL FACILITY	***************************************
Site Name		Phone No.	
Permit No.		Time	1.23 DM
hereby certify that the above listed material ha	ts been accepted and that inform	hation presented on this document is tr 10 - (- )	ue and accurate,



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

Name EXIDE TECH	n			Generating Locatio	n <u>EXIDE T</u>	CHNOLOGIES	······
Address <u>stated</u>	23. 2. A			7471 SOUTH	FIFTH STREE	T; FRISCO, 7.4.7	503#
05	-1~1			State Gen. ID No	30516		
Phone No. <u>Dr.Z. Curr</u>	ча <sup>т</sup> ал т			Gen. US EPA ID N	o. <u>TX:00064</u> ;	51660	
WASTE CODE	PROFILE NUMBER		WASTE	DESCRIPTION	V	QUANTITY	UNITS
				ung officiar carrie		- With	1
00273022	<u>95804ITX</u>	SOTL	FROM R	TAING WALL			· · · · · · · ·
					······································	· <u> </u>	,
CODES:	D = DRUM	: B = BAC	G: C = CAI				
I hereby certify that the above	ve listed material(s)	, is (are) not a h	azardous waste a	as defined by 40 CFR Part 2	61 or any applicable	JS; U = UIHE	н
each waste has been prope	rly described, class	ified and packag	ged, and is in pro	per condition for transportati	on according to ap	plicable regulations.	
CARCICE, C	DRIZED AGENT'S	<u>۸.</u> NAME	(PRINT)	10-1-12 C	Judle	1. carlil	L
			105-112-12-12-12-12-12-12-12-12-12-12-12-12			SIGNATURE	
ہے۔ Transporter's Name	Greens	Scapiny	TRANS	Phone No.	<	17-571	9160
Address	- 21	101 Hand	by Edenal	yp, Driver's name	auls 0	NN	10/19
	Ft-W	orth Tr.	14118	Vehicle No.	766	<u>. E</u>	
I hereby certify that the abov	e listed material w	as picked up at t	he Generator site	listed above and delivered	without incident to	he disposal facility liste	d below
HIPMENT DATE	Train	VER'S SIGNAT	IURE		E	DAIVER'S SIGNATU	IRE
		and the second			and the second		
			DISPOSA	L FACILITY			
Site Name				Phone No(972)	452 1712		
Address	an Au She A	A					
Permit No.	/			Time 2.41	SPN	ΛΛ	
I hereby certify that the abov	e listed material ha	s been accepted	d and that inform	ation presented on this docu	ment is true and ad	curate.	
	ANNE /	$\mathcal{K}\mathcal{M}$	(PRINT) -	0/01/12	-A	SIGNATURE	
			1		<i>j j</i>		



0.000000000

#### NON-HAZARDOUS WASTE MANIFEST

FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

ame EXILS: JECHDOLOGIES	, 	Generating Location	XIDE TECHNOLOGIES
Address <u>- 1 O E Cole 200</u> FRUS CO TX 75034			SINEET, FRISCO, 1X 75034
Phone No. 972 335-2124		State Gen. ID No     Gen. US EPA ID No	D006451090
WASTE CODE PROFILI	WAST	E DESCRIPTION	QUANTITY UNITS
			C. J.
00273022 958041	DE SOTL FROM	- RETAINING WA	nu <u>a yans</u>
CODES: D = DR	UM; B = BAG; C = C	ARTON: P = POUND: Y	
hereby certify that the above listed mater	ial(s), is (are) not a hazardous was	ste as defined by 40 CFR Part 261 or an	y applicable state law. That
ach waste has been property described,	Jassified and packaged, and is in	proper condition for transportation accor	ding to applicable regulations.
AUTHORIZED AGEI	VT'S NAME (PRINT)	<u>10-2-12</u> <u>Ula</u> DATE	SIGNATURE
			an a
$\wedge$	IHAI	NSPORTER	
(-re+	n Scapine		
ransporter's Name		Phone No	817-577-9299
Address	2401 Handley 1=00	and the Driver's name	uss (1.1
	norm in this	Vehicle No & (1)	/
hereby certify that the above listed mater	al was picked up at the Generator	site listed above and delivered without in	ncident to the disposal facility listed below.
SHIPMENT DATE	CHIVER'S SIGNATURE	$ \frac{1}{10} - \frac{1}{2} - \frac{1}{2}$	MALINA UM
			UNIVER 3 SIGNAIDRE
	DISPOS	SAL FACILITY	nn all frankriken frankriken frankriken frankriken frankriken frankriken frankriken frankriken frankriken frank
	L		
Site Name		Phone No	240
Address			x 76007
Permit No.			
hereby certify that the above fieled mater	iathas been accepted and that inf	ormation presented on this document is	true and cocurate.
<u>Å· Å</u>	lee	10/02/12	A.X.M.
/ MAME	(PRINT)	DATE	SIGNATURE



FOR OFFICE USE ONLY Customer Acc. No.

GENERATOR

WMI 1252657

Problem

Name_EXIDE TECHNOLOGIEC	G	enerating Location	FXILS TEMUMO	A-010-0				
Address PC/EOX 250								
FRISCO TX 75034		tate Gen ID No. 30	1516	<u></u>	<u></u>			
Phone No. 972 325 2121	G	en. US EPA ID No.	TX.DOGC 451090					
WASTE CODE PROFILE NUMBER	WASTE DE	SCRIPTION	QUA	NTITY	UNITS			
				12-				
10101217131012121 95804174 51	OIL FROM RE	TRENENL L	Mu	<u>                                     </u>				
CODES: D = DRUM; B = I hereby certify that the above listed material(s), is (are) n each waste has been properly described, classified and p CARLE LELERAGENTS NAME	BAG; C = CARTON not a hazardous waste as define backaged, and is in proper cond (PRINT)	N; P = POUND; ed by 40 CFR Part 261 c dition for transportation a $\frac{2}{10}$	Y = YARDS; 0 or any applicable state law according to applicable reg	= OTHER That gulations.	а С.			
Transporter's Name Address Zellil Ha	Pr policy Edamilla Dr Tr 76118 Ve	RTER none No iver's name hicle No	STT-5 auls ORA	77-9;	299			
SHIPMENT DATE	up at the Generator site listed a	bove and delivered with 	Dut incident to the disposa	I facility listed	below. E			
	DISPOSAL FA				and Carlot and Car			
Site Name	Ph Tin Cepted and that information pre-	one No. (972)455 	1213 17/70000 1040A					
	(PRINT)	6/12-1	SIGNATU	RE	·····			

White - Original • Canary - Transporter • Pink - Disposal Facility • Goldenrod - Generator



FOR OFFICE USE ONLY

Customer Acc. No. \_\_\_\_\_ Ticket No. \_\_\_\_

### GENERATOR

Name_EXIDE TECH	NOLGAIEE			Generating Loc	ation EXIDED	FECHNOLOGIES			
Address PO EOX 25	5C		_	7471 SOUTH FIFTH STREET FRISCO, TX 75034					
FRISCO TX 7500	34								
Phone No. 972 335-	2121			Gen. US EPA II	D No. TXD006	451080			
WASTE CODE	PROFILE NUMBER	I	NASTE D	ESCRIPTI	ON	QUANTITY	UNITS		
						S. Ja	Y		
0012171310122	958041TX	SOILI	FROM R	ETAINE	the wall				
							••••••••••••••••••••••••••••••••••••••		
CODES:	D = DRUM	; B = BAG;	C = CART	ON; P = PO	UND; Y = YAF	3DS: 0 = OTHE			
I hereby certify that the above each waste has been prope	ve listed material(s), dv described, classi	is (are) not a haza	rdous waste as de	efined by 40 CFR P	art 261 or any applica	able state law. That			
C Arland		. A	, and is in proper (	condition for transpo	ortation according to a	applicable regulations.	1.1		
CARLICE IL	DRIZED AGENT'S	NAME (P		<u>-1-1-1-2</u> DATE	Wende	SIGNATURE	lile		
Elementellalistication	and the second	1				OIGNATURE	Contraction of the second s		
	~		TRANSP	ORTER					
	Cirein	Sceping							
Transporter's Name	an Are C Last Province			Phone No.		317-577-93	779		
Address	24	Cilitandley	Ecternille	Driver's name	TRUB	ΟΛΛ	······································		
	<u> </u>	tool Tx	- 76118	Vehicle No.	846				
I hereby certify that the abov	/e listed material wa	s picked up at the (	Generator site list	ed above and delive	ered without incident t	o the disposal facility liste	d below.		
16-2-12	Pran	NI Com		10-2-	1)	Traville			
SHIPMENT DATE	DRI	VER'S SIGNATUR	E	DELIVERY	DATE	DRIVER'S SIGNATU	RE		
		DI	SPOSAL	FACILITY					
Other Manual OFW R	") T				723486 1916				
Address	I ROAC STRE			Phone No.	18/11/517/750	5 -			
Permit No	Λ	1			IDM		·		
I hereby certify that the above	ve listed material ha	s been accepted ar	d that information	IIMe <u>presented on this</u>		(+)			
, ,	XV	0 21		1,110	www.is me and	accurate.			
	ANAME		$\frac{1}{2}$	DATE	Å	-ARC	1		
	1		-			SIGINAL UHE	i		



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

Name52005_TECHNOLOGES	Generating Logation 5000	
Address <u>PO EOX 250</u>	2471 SOUTE FIETH ST	TELET. FRISCO TV 750%
ERICO IZ 75/4	State Gen. ID No30516	
Phone No335 2121	Gen. US EPA ID NoXD∂	06451090
WASTE CODE PROFILE WA	<b>STE DESCRIPTION</b>	QUANTITY UNITS
	wir aboutfarte matter at the	Side
DIDIZITIZE ALZ STRAFT SOIL FROM	m RETAINING WHIL	
<b>CODES:</b> D = DRUM; B = BAG; C hereby certify that the above listed material(s), is (are) not a hazardou:	= CARTON; $P = POUND; Y = Y$ is waste as defined by 40 CFR Part 261 or any app	ARDS; 0 = OTHER
AUTHORIZED AGENT'S NAME (PRIN	This in proper condition for transportation according	to applicable regulations.
Transporter's Name	Phone No. Phone No.	8/7-577-9299 3 OM
I hereby certify that the above listed material was picked up at the Gene I D	erator site listed above and delivered without incide	DRIVER'S SIGNATURE
DISP	OSAL FACILITY	ערבו באינטיינט איז
Site Name	Phone No. (972,459 1210) LEVASVILLE TX 7	2967
Permit No.	Time 349	2/2-1
I hereby certify that the above listed material has been accepted and the	at information presented on this document is true a	nd accurate SIGNATURE



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

Name EXIDE TECH	NOLOOPES		Generating Location	EXIDE TE	CHNOLOGIES				
Address PO BOX 25	·{)		7471 SOUTH FIFTH STREET PRISCO TY 76024						
FRISCO TX 7500			State Gen. ID No. 33	0516					
Phone No. 972 335	2121		Gen. US EPA ID No.	TXD00645	51090				
WASTE CODE	PROFILE NUMBER	WAST	E DESCRIPTION	<u> </u>	QUANTITY	IINITS			
						Y			
0102213022	958041TX	SOIL FROM	~ RETIDENTAL	usu	- 5405_				
	· · · · · · · · · · · · · · · · · · ·				· • • • • • • • • • • • • • • • • • • •	·			
CODES:	D = DRUM;	B = BAG; C = C							
I hereby certify that the abov	e listed material(s),	is (are) not a hazardous was	ite as defined by 40 CFR Part 261	or any applicabl	95, U = UTHE	H			
each waste has been proper	ny described, classif	ied and packaged, and is in .	proper condition for transportation	according to app	plicable regulations.	1.			
AUTAC	RIZED AGENT'S I	NAME (PRINT)	10-2-12 C	lende	SIGNATURE	file			
	literan ang sa								
	0 -	TRAI	VSPORTER						
	(rreen S	eaping							
Transporter's Name	<u></u>	in the other is	Phone No	<u> </u>	17-547-	9399			
Address	ELLI	Ul Mand ley Ed	Je/w/hyDriver's name	Leavis (	3.LA				
I harabu aadifu that the above			Vehicle No. <u>ð</u>	U (	······				
C C C C	e listed material was	s picked up at the Generator $\frac{1}{2}$	site listed above and delivered with	hout incident to t	he dispoșal facility liste	d below.			
SHIPMENT DATE		ER'S SIGNATURE	DELIVERY DATE	-44	DRIVER'S SIGNATI				
	1442 Contraction Contraction			and the second	Bitte Alexandra and a second				
		DISPOS	SAL FACILITY						
Site Name	,r		(972)45	IS 1213					
Address	POAD STREE		Phone No.	LE TX 75( 87					
Permit No.	Λ	Δ	Time 1:56P	T	1 1	<u> </u>			
I hereby certify that the abov	e listed material has	been accepted and that info	prmation presented on this docume	ent is true and ac	curate.	1			
		LEC (PRINT)	10 02 7	$-\Lambda$	Stational Profession	/			
	,	1		v /					



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

GENERATOR

## WMI 1252661

Name_EXIDE TUDHNOR (		······	Generating Location	EXIDE TROUMD OF 1
Address PO BOX 250			7471 SOUTH FIL	TH STREET FRISPO TO 7644
ERISCO IN 78004			State Gen ID No. 30	1516
Phone No. 972 335-2:21		······································	Gen. US EPA ID No.	TX (2008-451-090
WASTE CODE PR	OFILE MBER	WASTE	DESCRIPTION	QUANTITY UNI
				Cinto
002730220 958	OYITX S	SOIL FROM	LETAINENG W	MIL .
CODES: D =	DRUM; B	= BAG; C = CAR	TON: P = POUND	
I hereby certify that the above listed	material(s), is (are	) not a hazardous waste as	defined by 40 CFR Part 261 o	r = ranuos, u = UTHER
CORI- 100	A Classified an	ia packaged, and is in prope	r condition for transportation a	according to applicable regulations.
AUTHORIZED	AGENT'S NAME	(PRINT)	10-3-12 L	SIGNATURE
		TRANSI	PORTER	14 100 12 10 10 10 10 10 10 10 10 10 10 10 10 10
C				
Transporter's Name	een scall		Phone Ne	En en con
Address	2461 H	tanden Ederille K	Priver's pamo	011-511-9294 Caris ONA
	F. Worth	1×. 76118	Vehicle No.	iti
I hereby certify that the above listed	material was picke	d up at the Generator site li	sted above and delivered with	
117-3-10 -	Train	Maria	10-7-17	durincipent to the disposal facility listed below.
SHIPMENT DATE	DRIVER'S	SIGNATURE	DELIVERY DATE	DRIVER'S SIGNATURE
				alaanaa magaalaa ayaa ayaa ayaa ayaa ayaa ayaa ay
		DISPOSAL	- FACILITY	
Site Name			\$7.5365	+ 213
Address	no in herijan je parije e L. C. S. Station (C. S.		Phone No.	C 17. 7 CE
Permit No.		/	Time 9	Ulma
I hereby certify that the above listed	material has been	accepted and that information	on presented on this documen	We have and activity
1	NFI	1110	10/2/2-	
N	ME 4	(PRINT)	- DATE H (	SIGNATURE
				1

White - Original • Canary - Transporter • Pink - Disposal Facility • Goldenrod - Generator ------



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

Address       POLEON 250         PRECO TA 25034       State Gen. ID No. 30016         Phone No. 972 315 3111       Gen. US EPAID No. TXD00C461090         WASTE CODE       PROFILE         WASTE CODE       State Gen. US EPAID NO.         CODES:       D = DRUM; B = BAG; C = CARTON; P = POUND; Y = YARDS; 0 = OTHER         Interby certhy that the above listed material(s), is (are) not a tazandous waste as defined by 40 CFN Pai 261 or any applicable state law. That acat waste has been properly decreated.         CARLSLK       Mathematical Science         Address       Phone No.         Address       Phone No.         PALL       Phone No.	NameEXIDE TECHNOLOGIES		Generating Location	EXICE TECHNOLOGIES
PROCO TA 75:54       State Gen. ID No.       20016         Phone No.       972 305 2101       Gen. US EPA ID No.       TXD000461056         WASTE CODE       PROFILE       WASTE DESCRIPTION       QUANTITY       UNITY         UTITILIT       Gen. US EPA ID No.       TXD000461056         WASTE CODE       PROFILE       WASTE DESCRIPTION       QUANTITY       UNITY         UTITILIT       Gen. US EPA ID No.       TXD000461056       44 ycs         UDIDD/06.02.01       9580417X       Sozie FRom & ETASATANG, UARL       44 ycs         UTITILIT       Gen. US EPA ID No.       GUANTITY       UNITY         UDIDD/06.02.02       9580417X       Sozie FRom & ETASATANG, UARL       44 ycs         UDIDD/06.02.02       9580417X       Sozie FRom & ETASATANG, UARL       44 ycs         UDIDD/06.02.02       9580417X       Sozie FRom & ETASATANG, UARL       54000000000000000000000000000000000000	Address PC BOX 250		7471 SOUTH F	IFTH STREET, FRISCO, TX 70034
Phone No.       972 355 3131       Gen. US EPA ID No.       TXD004451090         WASTE CODE       PROFILE       WASTE DESCRIPTION       QUANTITY       UNITY         UTTTITIT       9002D1002D1002D1002D100       92304717       Sozial FROM RETAINENDA UNITY       UNITY         UTTTITIT       9002D1002D1002D100       92304717       Sozial FROM RETAINENDA UNITY       UNITY         UTTTITIT       9002D1002D2002D1000       92304717       Sozial FROM RETAINENDA UNITY       UNITY         UTTTITIT       9002D1002D2002D20000       92304717       Sozial FROM RETAINENDA UNITY       UNITY         UTTTITITIT       9002D1002D200000       92304717       Sozial FROM RETAINENDA UNITY       UNITY         UTTTITITIT       9002D1000000       92304717       Sozial FROM RETAINENDA       March         UTTTITITITITITITIC       9002D10000000000000000000000000000000000	FRIECO TX 75034		State Gen. ID No.	30516
WASTE CODE       PROFILE       WASTE DESCRIPTION       QUANTITY       UNITS         UITELLID       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4	Phone No		Gen. US EPA ID No.	T%.D006451096
DIDENTIFIER       9580417X       SOIL FROM RETAINENG UML         DIDENTIFIER       SOIL FROM RETAINENG UML         CODES:       D = DRUM; B = BAG; C = CARTON; P = POUND; Y = YARDS; O = OTHER         I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.         CARLETUR, WINDER UMA       MOTHORIZED AGENT'S NAME         Interesty certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.         CARLETUR, WINDER UMA       MOTHORIZED AGENT'S NAME         Transporter's Name       Image: Print Part Part Part Part Part Part Part Par	WASTE CODE PROFILE NUMBER	WASTE	DESCRIPTION	QUANTITY UNITS
DIDIDIDES: D = DRUM; B = BAG; C = CARTON; P = POUND; Y = YARDS; 0 = OTHER         Incody certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transpontation according to applicable regulations.         CARLELA_WERNER_ULA_AUTHORIZED AGENT'S NAME       10-3-12       Userstein a submitted of the applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transpontation according to applicable regulations.         CARLELA_WERNER_ULA_AUTHORIZED AGENT'S NAME       10-3-12       Userstein transponter's name         Address       AUTHORIZED AGENT'S NAME       (PRINT)       10-3-12         Transporter's Name       Phone No.       SiGNATURE         Transporter's Name       Phone No.       Phone No.         Address       PHONE NO.       PHONE NO.         FH-Wack       FY: 71/11%       Vehicle No.         PHONE NO.       PHONE NO.       PHONE         1b=r3-r_2       Phone NO.       PHONE         Site Name       PHONENCE       Phone NO.         1b=r3-r_2       Phone NO.       Phone NO.         1b=r3-r_2       Phone NO.       Phone NO.         1b=r3-r_2       Phone NO.       Site Name         DRIVER'S SIGNATURE       Phone NO		Commence of the second	ᠮᡱ᠖ᡃᡅᡍᢎ᠊ᠲᡊᠬᡊᢛᡍᠯᢁᠴ᠆ᠸᠥᠼ᠇᠊ᡋᠬᢓᢦᠥ	Hugh
CODES: D = DRUM; B = BAG; C = CARTON; P = POUND; Y = YARDS; 0 = OTHER         I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.         CARLER WERDER       10-3-12       Werderffelder regulations.         Additional and the packaged and is in proper condition for transportation according to applicable regulations.       SignATURE         Transporter's Name       ID-3-12       Werderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffelderffel	<u> </u>	SOIL FROM	RETAINING (	JALL
CARLELK_WENSELL NAME       10-3-12       Ukensell N. Caulus         AOTHORIZED AGENT'S NAME       (PRINT)       10-3-12       Ukensell N. Caulus         Signature       Signature       Signature         Transporter's Name       Free Scaphy       Phone No.         Address       3401 Hardbry Ederville No Driver's name       17.0.5 CM         Address       3401 Hardbry Ederville No Driver's name       17.0.5 CM         Address       Free Work       Free Scaphy       Phone No.         Intereby certify that the above listed material was picked up at the Generator site listed above and delivered without incident to the disposal facility isted below.       10-3-12         Intereby certify that the above listed material was picked up at the Generator site listed above and delivered without incident to the disposal facility isted below.       10-3-12         ShipPMENT DATE       DRIVER'S SIGNATURE       DELIVERY DATE       DATE         DISPOSAL FACILITY       DRIVER'S SIGNATURE       DELIVERY DATE       DRIVER'S SIGNATURE         Site Name       DEVENCE       Phone No.       (ST2)/459 121C         Address       ID-10       Time       DO(         Hereby certify that the above listed material has been stocepted and that information presented orbits document is true and accurate Advection       DO(	<b>CODES:</b> D = DRUM; B I hereby certify that the above listed material(s), is (a each waste has been properly described, classified a	= BAG; C = CA re) not a hazardous waste and packaged, and is in pro	RTON; P = POUNI as defined by 40 CFR Part 26	D; $Y = YARDS; 0 = OTHER$ 1 or any applicable state law. That
TRANSPORTER         Transporter's Name         Address       2401 Hard by Edential with Driver's name         Address       2401 Hard by Edential with Driver's name         FF: Ward       4x: 70118         Vehicle No.       87200         I hereby certify that the above listed material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.         16-3-12       10-3-12         DRIVER'S SIGNATURE       10-3-12         DELIVERY DATE       DRIVER'S SIGNATURE         DISPOSAL FACILITY       DRIVER'S SIGNATURE         Site Name       2000 Provide Contents         Address       1000 Provide Contents         Free Permit No.       Time         Hereby certify that the above listed material has been accepted and that information preserved orythis document is true and accurate.	CARLELK, WENSELL ) AUTHORIZED AGENT'S NAM	IE (PRINT)	10-3-12 LA	Jensells. Cariles
I hereby certify that the above listed material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.         10-3-12       10-3-12         SHIPMENT DATE       10-3-12         DISPOSAL FACILITY         Disposal Facility bisted below.         10-3-12         DRIVER'S SIGNATURE         DELIVERY DATE         DISPOSAL FACILITY         Site Name         COSE PARTE         Phone No.         (972)459 121C         DEWICET         Permit No.         Time         Time         Disposal facility that the above listed material has been accepted and that information presented onythis document is true and accurate.	Transporter's Name	TRANS Cardley Ederville Px: 74118	Phone No.	Tiruis OAK
DISPOSAL FACILITY         Site Name	I hereby certify that the above listed material was pic 16-3-12 SHIPMENT DATE DRIVER	ked up at the Generator sit	e listed above and delivered w	Ithout incident to the disposal facility listed below.
Site Name		DISPOS/	AL FACILITY	
- Weiter W / 19/1	Site Name COS DEVERSE Address	en accepted and that inform	Phone No. <u>EWACVE</u> Time nation presented on/this docum	$\frac{1591210}{1000}$



FOR OFFICE USE ONLY Customer Acc. No. \_\_\_\_\_ Ticket No. \_\_\_\_\_

GENERATOR

## WMT 1252663

Name <u>EX4003008</u>	MULCOPT		Generating Location	EXIDE TE	CENOLOOISE	
Address PO BOY 20	<u>}}</u>	·····	7471 E OUTH (	TH STREE	T. FFIELC. TX 7	6.03-4
	<u>}</u>		State Gen. ID No	3051E		
Phone No. 972 335			Gen. US EPA ID No		1090	
WASTE CODE	PROFILE NUMBER	WASTEI	DESCRIPTION		QUANTITY	UNITS
CITICITE.		-(			Out	
010121713101212	958041TX	SOIL FROM	RETAINING	util.	<u> </u>	
		······		·····		
CODES:	D = DRUM;	; $B = BAG$ ; $C = CAR$	TON; P = POUNI	D; Y = YAR[	OS: 0 = OTHF	R
I hereby certify that the above each waste has been proper	ve listed material(s), rty described, classif	is (are) not a hazardous waste as fied and packaged, and is in prope	defined by 40 CFR Part 26	1 or any applicable	e state law. That	
CARLEURI	JELAFI		$O_{\sim} < 1 > 1$	n according to app	licable regulations.	1
AUTHO	FIZED AGENT'S I	NAME (PRINT)	DATE	lunde	SIGNATURE	le
		TP A LO	ی اور			and the second
		INANSI	UHIER			
Transporter's Name	- reyen Dea	Pink			16 mm	0
Address	24	16) Handley Erlering	Phone No.	8	17-577- "	7.799
	Ft. hor	A The 71, 118	Vabiala No	Sam	Duy	
I hereby certify that the abov	e listed material was	s picked up at the Generator site it				
16-5-12	100	A A LA	to to the second delivered w	ithout incident to th	e disposal facility lister	d below.
SHIPMENT DATE	DRIV	VER'S SIGNATURE	DELIVERY DATE		DRIVER'S SIGNATU	RE
BUILDER DER BUILDER STERRENZEN DER BUILDER BUILDER BUILDER BUILDER BUILDER BUILDER BUILDER BUILDER BUILDER BUIL	ang daga mang pang ang pang pang pang pang pang pa					
		DISPOSAL	. FACILITY			
Site Name	<i>.</i>			ž		
Address			Phone No.		·····	
Permit No.	. A. A.		Time 12:21	PM	<u> </u>	·····
I hereby certify that the above	e linted marchial has	been accepted and that information	on presented on this docum	lent is true and had	1-11	
)	1-101	00	olsha			λ
	NAME	(PRINT)	DATE	-	SIGNATURE (	1



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

## WMI 1252664

\_\_\_\_\_

NameNEETECH	NOC EL			Generating Location	EXIDE TE	THREAT TO	
Address PC EOX 25 VRISCO TK DECE	Ç			7471 COUTH [	15 174 0 TROP 105 1 6	T, TEXCOLO II II	¥102
Phone No. 972 835-2321				Gen. US EPA ID No.	TXDOUGA®	licer	
WASTE CODE	PROFILE NUMBER		WASTE	DESCRIPTION		QUANTITY	UNITS
						Sinte	
000-173022	<u>958 byi D</u>	SOIL 1	FRom K	ETAINING (	MU.		
CODES:	D = DRUM	; B = BAG;	C = CAR		); Y = YARI	DS: 0 = OTHE	 R
I hereby certify that the abov each waste has been proper	e listed material(s) ly described, class	, is (are) not a haz ified and package	ardous waste as d, and is in prop	s defined by 40 CFR Part 261 er condition for transportation	or any applicabl	e state law. That	
CARLEY MANTHO	JEMJELL RIZED AGENT'S	NAME		4 047 2012 (m DATE	Jendly	SIGNATURE	
Transporter's Name	Have Ley Have Ley Hi Log	$\frac{1}{\frac{1}{2}} \frac{1}{\frac{1}{2}} $	TRANS	PORTER Phone No. Driver's name	2 81 1 a. wis On 2 4 6 / 34 5	7-577-9 1/	299
10-24-12 SHIPMENT DATE	May		7 JRE	UC-24-12 DEEIVERY DATE	inout incident to		d below. 7 JRE
		D	ISPOSA	L FACILITY	anna 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1 Anna 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1 Anna 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1	antisazziaaneterezistaranenesesisezieteke	
Site Name				Phone No.		<u></u>	
Permit No				Time	[	ZOpn	
I hereby certify that the abov	e listed material H OY (W NAME	as been accepted	and that informa	tion presented on this docum	ent is true and an	SIGNATURE	

White - Original · Canary - Transporter · Pink - Disposal Facility · Goldenrod - Generator



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

**GENERATOR** 

# WMI 1252670

Participation of the

Name CARA HELM	in kalendari dar. M		Generating Location	EXIDE TE	CHNOLOGIES	
CEISCO TX TOOL	ма. 		<u></u>	<u>er THI STREE</u>	J; FRISCO, TY 7.	5004
Phone No. 972 325	Q(Q)		State Gen. ID No.	TSIDDORAR	-505F.	
			Gen. US EPA ID NO.		10241	······
WASTE CODE	NUMBER	WASTE I	DESCRIPTION		QUANTITY	UNITS
				ito, pitroni	Sint	Y Y
0101217131012121	<u>9580417</u> x	SOIL FROM R	ETATIVENS IN	ALL		·····
CODES:	D = DRUM· 1					
I hereby certify that the above	ve listed material(s), is	(are) not a hazardous waste as	defined by 40 CEB Post 361	γ, τ ≕ ΥARI	DS; 0 = OTHE	R
each waste has been prope	rty described, classified	and packaged, and is in proper	condition for transportation	according to app	e state law That blicable regulations,	
CARLEWE	WEMPEL	<u>L 8.</u> [	0-31-12	Jende	Il. Carl	like
AOTIC	HIZED AGENT S NA		DATE		SIGNATURE	
~		TRANSF	PORTER			
T	-leensca	ling	~		Jan	a
Address		He of how took allo	Phone No.		1511-	1dt
Address	Flup 1	To TIMO	Driver's name	Aavis	M	
berohy costify that the above	JJ U.C.A.H.			-6		
	e listed material was p	icked up at the Generator site lis	ited above and delivered with	hout incident to t	he disposal facility liste	d below.
SHIPMENT DATE	- AGUE	A UM R'S SIGNATURE	- 10-31-13 DELIVERY DATE	2M	THINER'S SIGNATI	100
					Dimenso Sicilar	
		DISPOSAL	. FACILITY			1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
				10 state		
Site Name	INGAL STREET		Phone No. (872)-30	Melana Literatura		
Address		· · · · · · · · · · · · · · · · · · ·	0.00¥V3668484		~	
Permit No.			Time		dep-	-
nereby certify that the abov	e listed material has be	een accepted and that information	presented on this docume	ent is true and ac	Purate.	
~	1 ( MAT	UN II	1 1/10-	1		
		(PHINT) /	UATE I	L	SIGNATURE	·····



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

NameNOE_TECHNIC: OC/ED	Generating Locati	DNFXIDE TECHNOLOGIES
Address <u>PC ROX 050</u>	7471 SOUTH	LEFTH STREET, FRIECO, TX 75934
TRISCO TX 75034	State Gen. ID No.	36516
Phone No	Gen. US EPA ID N	o. <u>TXDD06451030</u>
WASTE CODE PROFILE NUMBER	WASTE DESCRIPTIO	N QUANTITY UNITS
		Lipt
010217131012121 958041 TX 503	IL FROM RETAINTAL	MU
<b>CODES:</b> $D = DRUM; B = BACCERTERS$	AG: C = CARTON: P = POU	
I hereby certify that the above listed material(s), is (are) not a	a hazardous waste as defined by 40 CFR Part 2	$10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{-1}$ $10^{$
each waste has been properly described, classified and pack	kaged, and is in proper condition for transportat	ion according to applicable regulations.
AUTHORIZED AGENT'S NAME	(PRINT) 10-31-12 C	Sentello. Cuchile
	TRANSPORTER	
(Freen Scaping		
Transporter's Name	Phone No.	817-577-9299
Address 72201 Ha	2/44/EC/EC/Vilk Driver's name	TAV'S ORA
H. Wath 1	2-710-118 Vehicle No	800
I hereby certify that the above listed material was picked up a	at the Generator site listed above and delivered	without incident to the disposal facility listed below.
SHIPMENT DATE DATUS	VATURE Q=31-	2 Trawyay
	DELIVENTOR	DRIVER'S SIGNATURE
	DISPOSAL FACILITY	
L	······································	
Site Name OFW PD7	Phone No	)459 0213
Address	( FV28)	ALE 17 76(107
Permit No.	Time	3:05 DM
hereby certify that the above listed material has been accer	pted and that information presented on this doc	ument is true and accurate.
K Dode	10-31-12	K Badoo
NAME	(PRINT) DATE	SIGNATURE



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

# WMI 1252672

27592F

Name_EXICE TECHNOLOGIES	Generating Location	EAIDE TECHNOLOGIES
Address PO BOX 250	747: SOUTH Fi	TH STREET, FRISCO, TX 75034
FRISCO TX 75074	State Gen. ID No	X16
Phone No972 336 2121	Gen. US EPA ID No.	TX D00645109C
WASTE CODE PROFILE NUMBER	WASTE DESCRIPTION	QUANTITY UNITS
		ale y
LILILI	FROM RETAINING	MU app2
CODES: D = DRUM: B = BAG:	C = CARTON: P - POUND	
hereby certify that the above listed material(s), is (are) not a haza	ardous waste as defined by 40 CFR Part 261 (	r = ranus; U = UIHEH
each waste has been properly described, classified and packaged	I, and is in proper condition for transportation a	according to applicable regulations.
AUTHORIZED AGENT'S NAME	PRINT) 11-1-12 L	endelle cartile
		SIGNALUHE
	TRANSPORTER	
( reensen Place		
Transporter's Name	Phone No	- 817-577-929
Address 240, Handly	Everythe Driver's name	RUIS OAR
- The Worth Tp. 12	74118 Vehicle No 86	le
I hereby certify that the above listed material was picked up at the	Generator site listed above and delivered with	out incident to the gisposal facility listed below.
11-1-12 Marked Sector	11-1-12	TANINA GAR
DRIVERS SIGNATO	TE DELIVERY DATE	URIVER'S SIGNATURE
D	SPOSAL FACILITY	
Site Name	Phone No972)45	
Address	. EWAS VILL	2 7X 75007
Permit No.	Time	11.4 CAr
hereby certify that the above listed material has been accepted a	nd that information presented on this documer	It is true and accurate.
- IPIT/w	$\leq 111118$	111
NAME (F	PRINT) DATE / (	SIGNATURE



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

## WMI 1252673

	<u> </u>		L	no to la lation and from	02010
Name_EXIDE TECHNOLOGIES		Generating Location	n <u> </u>	CHIVOLOGIES	
Address PO BCX 250		7471 SOUTH	FIFTH STREE	T; FPISCO, TX 7	5034
PRISCO TX 75034		State Gen. ID No	30516		
Phone No. 972 355 2121	·····	Gen. US EPA ID No	TXD00345	1090	
WASTE CODE PROFILE	WACTER	ECONINTIAL	£		T
NUMBER	WASIEL	ESCHIPTION	DIRECT IN COLUMN	QUANTITY	UNITS
				- Syds	Y
0102173012RI 95804174 S.	OTC FROM R	ETATINING	upu _		
	<u> </u>				
CODES: D = DRUM; B =	BAG; C = CART	ON: P = POUN	D: Y = YABI		<u>ت</u>
I hereby certify that the above listed material(s), is (are)	not a hazardous waste as d	efined by 40 CFR Part 26	of or any applicable		n
Contraction of the second seco	packaged, and is in proper	condition for transportatio	in according to app	licable regulations.	
AUTHORIZED AGENT'S NAME	<b>11-</b>	-1-12 L	Sente	Ule. car	Lile
Endersteinen erstennen konsten anter er under er under er e			and the second statements	SIGNATURE	
	TRANSP	ORTER			an a
Green Scalling			J		
Transporter's Name	<u> </u>	Phone No.	8	17-677-6	7200
Address 2401 h	tadly Edwill	Driver's name	Travisi	ANA	
Filbth;	Te. 20118	Vehicle No.	20	<u></u>	·····
I hereby certify that the above listed material was picked	up at the Generator site list	ed above and delivered v	vithout incident to th	o diananat la all'ha liata	
11-1-12 -190.48	310	11 1-12	ninour incluent (0 ()		d below.
SHIPMENT BATE DHIVERS	SIGNATURE	DELIVERY DATE	= -1	DRIVER'S SIGNATU	IRE
	ale and a second se				
	DISPOSAL	FACILITY			alauso ar air an an air an
	L		J		
Site Name		Phone No. (972)/	(59-12-13		
Address		UTWICK?	LLE TX 75007		
Permit No.	7	Time	ZOLDA		
I hereby certify that the above listed material has been a	ccepted and that information	n presented on this docum	nent is true and acc	leie.	
- Though In		11/112	- 1	$\sim$ $L$	
NAME (UN	(PRINT)	panel + 1 /		SIGNATURE	
			1		



FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### GENERATOR

## WMI 1252674

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	074 2001 <b>1</b> 0 04						
NamePO_EOS_25	1			Generating Loc	cation <u>EXIDE</u>	ECHNOLOGIES	
FRECOTX 75US					ANTER IN SIRE	ALLENSCO, TA 7	5034
				State Gen. ID N	10. <u>30316</u>	1 M - 1 - 10 - 10	
Phone No	· · · · · · · · · · · · · · · · · · ·			Gen. US EPA I	D No	451080	
WASTE CODE	PROFILE NUMBER		WASTE	DESCRIPTI	ON	QUANTITY	UNITS
CLILLING				enter an esta esta esta de la com		S. de	Y Y
002030122	95 BOHITE	SOIL	FROM	LETATINTAL		- <u> </u>	
							<u></u>
cones.							<u> </u>
Lhereby certify that the above		$\mathbf{D} = \mathbf{D}\mathbf{A}\mathbf{G}$		(ION; P = PC)	P(VND; Y = YAF)	RDS; 0 = OTHE	R
each waste has been proper	y described, classifi	ed and package	ed, and is in prop	s defined by 40 CFR F er condition for transp	art 261 or any application according to a	ble state law. That policable regulations.	
CARLILE,	JENDEL	CD.		11-1-12	1.1.1	MAR Carl	:0
AÚTHO	RIZED AGENT'S N	AME	(PRINT)	DATE	Contractor	SIGNATURE	u,
Address	F.I. W F.I. W Bisted material west Market DRIV	201 Han 2014 Tro picked up at th Picked up at th Picked up at th Picked up at th	Ney Edg 74118 e Generator site M JRE	Phone No. Priver's name Vehicle No listed above and deliv DELIVERY	SLO SLO ered without incident t DATE	o the disposal facility liste	d below.
		Ľ	ISPOSA	L FACILITY			
Site Name UP W BO Address	r .Reme stree	Tra .		Phone No. ( ( EV.	972)459 (01) 98V(6337),759		
Permit No.				Time	100	Anz	
I hereby certify that the above	listed material has	been accepted	and that information (PRINT)	tion presented on this	document is true and	accurate. SIGNATURE	



FOR OFFICE USE ONLY Customer Acc. No.

### GENERATOR

## WMI 1252675

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Name		ienerating Location		(21)) (21) (21) (21)	
Address <u>POBON 050</u>		7471 S C(17)	FIFTH STREE	T TENSCO TV V	
77500 TX TX 28	S	tate Gen. ID No	3051E		v 1. č. 19
Phone No. 972 375 212.1	G	ien. US EPA ID No		1090	
WASTE CODE PROFILE NUMBER	WASTE DE	SCRIPTION		QUANTITY	UNITS
				S vale	<u> </u>
0022131022 25804172 50	The Fron RET	AINTH. L	NALL		
CODES: D = DRUM; B = I hereby certify that the above listed material(s), is (are) n each waste has been properly described, classified and p CARLTLE, KANELL AUTHORIZED AGENT'S NAME	BAG; C = CARTON of a hazardous waste as defini- backaged, and is in proper cond (PRINT)	N; $P = POUN$ and by 40 CFR Part 26 dition for transportatio $\frac{3-12}{ATE}$	D; Y = YAR[ 1 or any applicable n according to app	DS; 0 = OTHE e state law. That licable regulations. 4. CCM SIGNATURE	R
Transporter's Name	TX: 76118 VE	HTER none No.	81 Trauls C	7-577-9; MA	299
I hereby certify that the above listed material was picked u 1/-G-12 SHIPMENT DATE DRIVERSS	up at the Generator site listed a	bove and delivered w <u>11-9-72</u> DELIVERY DATE	ithout incident to H	ne disposal facility listed	d below. RE
	DISPOSAL F/	CILITY	and approximation of the second	Same and statement and the same and the same of the	
Site Name	Ph	ione No. (07.0)3	ta izin Ta izin		
Permit No.	Tir	ne	****		
hereby certify that the above fisted material has been accondition of the second secon	(PRINT)	sented on this docum	ient is true and acc		¥


FOR OFFICE USE ONLY Customer Acc. No.

Ticket No.

### **GENERATOR**

NameEXIDE TECHNOLOGIES		Generating Location	ENDE TE	OHNOLGGES				
Address PO BOX 280		7471 SOUTH HETH STREET, FRIECO TX 76022						
FRISCO TX 75054		State Gen. ID No.	3051(					
Phone No		Gen. US EPA ID No	TXD00645	1060				
WASTE CODE PROFILE NUMBER	WASTI	E DESCRIPTION		QUANTITY	UNITS			
				y no	V			
1010217131012121 9580417X 5	OIL FROM	RETAINING C	Able	squ s	<u> </u>			
					<u> </u>			
CODES: D = DRUM; B	= BAG; C = CA	ARTON: P = POUN						
I hereby certify that the above listed material(s), is (ar	e) not a hazardous waste	e as defined by 40 CFR Part 26	1 or any applicable	state law. That	н			
each waste has been propeny described, classified a	nd packaged, and is in p	roper condition for transportatio	n according to app	icable regulations.	А			
AUTHORIZED AGENT'S NAMI	E (PRINT)	-H-G-D L	Junth	SIGNATURE	la			
$\cap$	TRAN	SPORTER						
Gerran Sca	Alne			1 Annie 1	<b>)</b> _			
Transporter's Name	Hadle WI	Phone No.		7-517-9	1299			
Address Fru bi	h the and	U/IL Driver's name	Travis O	<u>u</u>				
horoby optify that the about field material use sid			06					
I I CA I CARLES IN THE ADOVE ISSEE MALERIA WAS DICK	ced up at the Generator s	ite listed above and delivered w	vithout incident to the	e disposal facility liste	d below.			
SHIPMENT DATE DRIVER	S SIGNATURE	DELIVERY DATE	- Al	UMN DAIVER'S SIGNATI	RF			
				• • • • • • • •				
	DISPOS	AL FACILITY		an a				
			ļ					
Site Name DFW EDF		Phone No	1999 ag 19					
Address State States and States and States		EVACVI	LICEN 75627					
Permit No		Time	1:5	3pm				
I hereby certify that the above listed material has bee	n accepted and that infor	mation presented on this docun	nent is true and acc	prate.				
- R DO	ALEA	11-9-12	K.	DOXL	et			
		DATE		SIGNATURE	<u> </u>			



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NON-HAZARDOUS WASTE MANIFEST

FOR OFFICE USE ONLY Customer Acc. No.

GENERATOR

## WMI 1252677

1992.0419-1992.7

	11 Jan 10 c					
	<u>n in sin servez en s</u> On s		Generating Locatio	n <u>EXIDE TE</u>	CENOLOGIES	
FRECO TV 7505			7471 SOUTH	FITTE	T; FRISCO, TX 7	0034
01			State Gen. ID No	30516		
			Gen. US EPA ID N	<b>b</b> . <u>TX.D00645</u>	1090	
WASTE CODE	PROFILE NUMBER	WASTE	DESCRIPTION		QUANTITY	UNITS
					8.1-	Y Y
DIDRD BIDRE	<u>9580417</u> 2 .	SOTL FROM	LETAINIAL L	mu	= ops	<u></u>
CODES: I hereby certify that the above each waste has been properly CARLTLE	D = DRUM; listed material(s), described, classif	B = BAG; C = CAI is (are) not a hazardous waste a fied and packaged, and is in proj	RTON; $P = POUN$ as defined by 40 CFR Part 26 per condition for transportation	D; Y = YAR[ 51 or any applicable on according to app	DS; 0 = OTHE estate law. That licable regulations.	R
Transporter's Name	een Scal Quo F.L.b.d	TRANS	Phone No.	Thank 8	17-577 OLL	-9290
I hereby certify that the above $\frac{11 - 9 - 12}{\text{SHIPMENT DATE}} =$	isted materiał was	picked up at the Generator site	listed above and delivered w <u>11-9-12</u> DELIVERY DATE		DRIVER'S SIGNATU	t below. RE
		DISPOSA	L FACILITY			******
Site Name	100000000		Phone No. (572)4	59.1010 12 78 20027		
Permit No	Steri material has		Time	12:45	5 pm	
	NAME		tion presented on this docum	ient is true and acci		ey



FOR OFFICE USE ONLY Customer Acc. No.

GENERATOR

Ticket No.

Name_EXIDE TECHI	<u>vologies</u>		Generating Location	EXIDE TECHNOLOCIES
Address PO BOX 15	<u></u>		7471 SOUTH FI	TH STREET, FRISCO, TX 75034
FRISCO TX 7505			State Gen. ID No. 30	0516
Phone No. 972 3354	2121		Gen. US EPA ID No.	TXD005451090
WASTE CODE	PROFILE NUMBER	WASTE	DESCRIPTION	QUANTITY UNITS
<u> </u>				Strok 1
00121713012121	958041TX	SOTL FROM RA	ETAINING WAL	1 0 / pc
CODES:	D = DRUM	: B = BAG: C = CA		
I hereby certify that the abov	e listed material(s)	, is (are) not a hazardous waste	as defined by 40 CFR Part 261 of	or any applicable state law. That
each waste has been proper	ly described, class	ified and packaged, and is in pro	per condition for transportation a	according to applicable regulations.
CARLELE IL	FIZED AGENT'S	L A. NAME (PRINT) -	16-31-12 C	levelly. Cartile
Enforcedapenetic and an entertain and a second	287419-1212-1212-1212-1219-1219-1219-1219-1			
		TRANS	SPORTER	
· · · · · ·	-repo Sc	hling		
Transporter's Name			Phone No.	817-577-9269
Address	$\square $	401 Hawthey EC	enonier's name	anis CMA
-(	Ft.L	orth Tp. nill	Vehicle No	4
I hereby certify that the abov	e listed material <sub>j</sub> wa	as picked up at the Generator site	e listed above and delivered with	nout incident to the disposal facility listed below.
10-31+12	Hacus	Nama	11-31-12	JADINA Que
SHIPMENT DATE		VEP'S SIGNATURE	DELIVERY DATE	DRIVER'S SIGNATURE
				1999 1997 1997 1997 1997 1997 1997 1997
		DISPOSA	AL FACILITY	
5.0°. A. 5°		L		
Site Name	iono tretag	· · · · · · · · · · · · · · · · · · ·	Phone No. (972)45	
Address	sa na sa ƙasar ƙasar ƙ	•	, , , , , , , , , , , , , , , , , , ,	
Permit No			Time	007Am
I hereby certify that the abov	e listed material ha	is been accepted and that inform	nation presented on this docume	ent is true and accurate.
/	1 <u>(a</u>	1 um	1153118	
	NAME		DALE (	SIGNATURE



FOR OFFICE USE ONLY

Customer Acc. No. \_\_\_\_\_\_ Ticket No. \_\_\_\_\_

### GENERATOR

Name_EMDETECHNCLCOPE	Generating Location	
Address PO BOM 250		THOISTET EDISCO TYTEM
	State Gen ID No	)515
Phone No	Gen. US EPA ID No.	TY Deve 46 1097
WASTE CODE PROFILE NUMBER	WASTE DESCRIPTION	QUANTITY UNITS
		-81
00273022 9580417 50	IL FROM REPAINING UN	
CODES: D = DRUM; B =	= BAG; C = CARTON; P = POUND;	Y = YARDS; 0 = OTHER
each waste has been properly described, classified and <u>CARLELE, FISELL</u> AUTHORIZED AGENT'S NAME	(PRINT)	r any applicable state law. That coording to applicable regulations. <u>Justelly catile</u> SIGNATURE
Transporter's Name Que 2401 Ha	TRANSPORTER Phone No Whey Edecuilly Red Driver's name Tx 76118 Vehicle No	
Thereby certify that the above listed material was picked <u>13-31-12</u> SHIPMENT DATE DRIVER S	d up at the Generator site listed above and delivered witho	ut incident to the disposal facility listed below.
	DISPOSAL FACILITY	
Site Name 2007 FAM POWERSTREET	Phone No. (72.2) 456	TA 2007
Permit No.	Time	VSIAM
hereby certify that the above listed material has been a	ccented and that information preparted on this document	t U VT 1
	(PRINT) DATE	SIGNATURE



FOR OFFICE USE ONLY
Customer Acc. No. \_\_\_\_\_
Ticket No. \_\_\_\_\_

GENERATOR

Name_EXIDE TECH	<u>10100720</u>			Generating Location		CHNOLOGIES	
Address PO BOX 25	<u>.</u>			7471 SOUTH	FITH STREE	T. FRISCO TX 7	PCG.4
FRISCO TX 750	24			State Gen ID No	30516		
Phone No 972 335	2121			Gen. US EPA ID No.	. TXD9064	51090	
WASTE CODE	PROFILE NUMBER	<u> </u>	WASTE	DESCRIPTION	]	QUANTITY	UNITS
				na in a hàitearia i dan mètr		Sude	ļ.
1010121713101212+	<u>9580417</u> k	Sotl	From	RETATIVIALS	uple		Y
CODES:	D = DRUM	: B = BAG	C = CA				
I hereby certify that the abov	e listed material(s)	, is (are) not a ha	azardous waste	as defined by 40 CFR Part 26		DS; U = OTHE	.H
each waste has been prope	rly described, class	ified and packag	ed, and is in pro	per condition for transportation	on according to ap	plicable regulations.	
CARITU	ELEN CENTRE	DEU	<u>s.</u> /	9 NIN, 2012 (	Serle	Uli. con	chilo
AUTAL	MIZED AGENT'S		(PRINT)	DATE		SIGNATURE	
Gee	-reens	caling	TRANS	SPORTER			*~ -
Transporter's Name			-	Phone No,		17-577-	- 9299
Address		101 Hanc	they Echer	A Driver's name	Travis	OLK	
	Et. No	db 741	18	Vehicle No $8$	L.L.		
I hereby certify that the abov	e listed material	as picked up at ti	he Generator site	e listed above and delivered v	without incident to	the diseased facility lists	d holey
11-19-12 SHIPMENT DATE	-Ma	IVER'S SIGNAT	URE	11-19-12 DELIVERY DAT	2-11	CANCER'S SIGNATI	
			DISPOSA	L FACILITY		90-224 Handidox 2022-2023-2023-2023-2023-2023-2023-2023	
Site Name OFW SE	) <sup>¢</sup>			(972)	- 459 at 10		
Addrees	LECAD STRE	1		Phone No.	LLE EC 7800		
Permit No		····-		77	N11	OTA -	
I hereby certify that the above	e-listed material h	a been accenter	and that inform			- / Aral	
	NAME /	un	(PRINT)				
			······			SIGNATURE	



FOR OFFICE USE ONLY Customer Acc. No. Ticket No.

### GENERATOR

# IEEEE

CREW COLORING

	(	······································			WML 1	L25268;
Name_EXIDE TECHNOLOG	HES		Conception Local			- 10.
Address PO BOX 250		***************************************	2 Generating Location 7471 SOUTH F	tru eren		: ò
FRISCO TX 76034				0530	<u>e c. Erisco, 1</u>	X 75034
Phone No. 972 335-2121			- State Gen. ID No	TYDDDau	E1000	
			Gen. US EPAID NO.			
WASTE CODE NUM		WAST	E DESCRIPTION		QUANTI	TY LINITS
LTTTTTTTTTTTT						4
1001212131012121 9580	4102 502	SL. FRon	- RETREAMENT	. pli	Quale	
				The	8405	- /
				·····		
hereby certify that the above listed m ach waste has been properly describe	aterial(s), is (are) not ed, classified and na	t a hazardous waste	as defined by 40 CFR Part 261	or any applicabl	e state law That	HER
CARIDIE . NE.	skel.	windlen, and is in pr	oper condition for transportation :	according to app	plicable regulations	s.
AUTHORIZED AC	GENT'S NAME	(PRINT)	19 NOU. 2012 (	Lule	11. ca	stil
	and the second se	Nie black and a for the particulation of the state of the		250000000000000000000000000000000000000	SIGNATURE	
		TRAN	SPORTER			
Green	Scallor	/				
ransporter's Name		<b> -</b>	Phone No		/	<b>A</b>
ddress	2401 Hand	ley Fderr	Illu Driver's name		211	-9299
FA	Worth T	6.71.111	Vehicle No. 87.1	TEUS	JR.M	·····
ereby certify that the above listed ma	terial was picked up	at the Generator all		4		
11-16-12 -1.	and R		e listed above and delivered with	out incident to the	ne disposal facility	listed below.
SHIPMENT DATE	DHIVER'S SIG	NATURE		21no	un On	4
					DHIVER'S SIGN	ATURE
		DISPOSA		and the second		
	L,	<u> </u>				
e Name			(972)459	1213		
dress 1990 S RAILROAD S	TREET		EVASVAL	E TX 75007		
mit No			Time	15		
areby certify that the above listed mat	erial has been accer	oted and that inform	ation presented on this day	~ 51		
17Pht	$\chi \eta J$			is true and acci	Jrate.	
NAME		(PRINT)	HDATE - 2			
J	•	,			SIGNATURE	· · · · · · · · · · · · · · · · · · ·



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NON-HAZARDOUS WASTE MANIFEST FOR OFFICE USE ONLY

Customer Acc. No. \_\_\_\_\_\_ Ticket No. \_\_\_\_\_

### GENERATOR

## WMI 1252683

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Name		- <u></u>		Generating Location	n <u> sxida n</u>			
Address FOECA				<u>747. sc.m.</u>		<u>11.18.000, 78</u> 7:		
5. The start of			· · · · · · · · · · · · · · · · · · ·	State Gen. ID No3051 //				
Phone No				Gen. US EPA ID No	. <u> </u>	2007)) 		
WASTE CODE		I	NASTE I	DESCRIPTION	)	QUANTITY	UNITS	
010273932 93	r804/17x	Soul	FROM	Retaining	wall	lavos	У	
		<u></u>					· · · · · · · · · · · · · · · · · · ·	
CODES: D	= DRUM; B	= BAG;	C = CAR		D: Y = YAR		B	
I hereby certify that the above liste	ed material(s), is (ar	e) not a haza	rdous waste as	defined by 40 CFR Part 2	51 or any applical	ble state law. That		
each waste has been properly des	scribed, classified a	nd packaged	, and is in prope	r condition for transportation	on according to a	oplicable regulations.	•,	
AUTHORIZE	DAGENT'S NAM	∕ <u>∦∙</u> E (⊧	PRINT) 12	DATE L	July	SIGNATURE	la	
			TRANS	PORTER				
G	reenSca	eine	······			~	-	
Transporter's Name			1 1 1	Phone N		17-577-	9266	
Addree	24	<u>oj Hano</u>	Hy Eden	Upriver's name	Frauls	ORK		
	-t. Work	76118	(	Vehicle No.	800			
I hereby certify that the above liste	ed material was pie	keg up at the	Generator site I	isted above and delivered	without incident to	the disposal facility list	ed below.	
11-19-12	- TAW	US ()	<u>/</u>	<u> </u>	L M	avis Oc	<u>M</u>	
Shir MENT DATE	0,	o olana o		DELIVENT DA		DHIVER'S SIGNAL	URE	
		D	ISPOSA	L FACILITY	and a second	n an		
		L						
Site Name				Phone No.	) 제작 (2011			
Address	an an the same of the same				and the state			
Permit No.					USP		·····	
I hereby certity that the above list	ed material has the	en accepted a	and that informa	tion presented on this doc	ument is true and	accurate.		
	V)OT	145	$\left  C_{\varsigma} \right _{-}$	11-15-12	<u>&gt;</u>			
	NAME		(PRINT)	DATE '		SIGNATURE		

White - Original · Canary - Transporter · Pink - Disposal Facility · Goldenrod - Generator



FOR OFFICE USE ONLY Customer Acc. No. \_\_\_\_\_ Ticket No.

GENERATOR

### WMI 1312048

Name_Exide Technologies	Generating Location Exide Te	chnologies
Address PO Box 250	7471 South 5th St; Frisco,	TX 75034
Frisco TX 75034	State Care 10 1: 30516	
Phone No. 972 335-2121	Gen. US EPA ID NoTXD0064	451090
WASTE CODE PROFILE WASTE	DESCRIPTION	QUANTITY UNITS
OB2171310212+9580417K SOIL FROM	DE TREAT NO WHILL	840/s ×
<b>CODES:</b> D = DRUM; B = BAG; C = CAR I hereby certify that the above listed material(s), is (are) not a hazardous waste as each waste has been properly described, classified and packaged, and is in prope <u>CARLECEPTER</u> .	TON; $P = POUND; Y = YAF$ defined by 40 CFR Part 26t or any applica er condition for transportation according to a AOU. 2-012 DATE	RDS; 0 = OTHER ble state law. That pplicable regulations.
TRANSI Transporter's Name <u>Green Scaping</u> Address <u>2401 Handley Ederville</u> <u>Kol.</u> <u>F4. Loch</u> <u>TV. 70118</u> I hereby certify that the above listed material was picked up at the Communications	PORTER Phone No. 8/7-57- Driver's namer Mau 15 ( Vehicle No. 8/16	7-9299 24
SHIPMENT DATE	sted above and delivered without incident to	
DISPOSAL	FACILITY	
Site Name DFW RDF Address Address Permit No. I hereby certify that the above listed material has been accepted and that informatic NAME (PRINT)	Phone No. Lewisville TX 75067 Time Time DATE	SIGNATURE

White - Original · Canary - Transporter · Pink - Disposal Facility · Goldenrod - Generator



### **ATTACHMENT 2**



#### Attachment 2

	FRENCH DRAIN INSPECTION REPORT FORM								
	GENERAL INFORMATION								
Proj	ect Name & Location								
Date	of Inspection		Start/End Time						
Insp	ector's Name(s)								
Insp	ector's Title(s)	T							
Insp	ector's Contact Information								
Desc	ribe the current condition of the French	Drain:							
Wea	ther at time of this inspection?								
		WEEKLY IN	SPECTION						
	French Drain System Component	Component Functioning?	Maintenance Required?	Corrective Action Needed & Notes					
1	Pump & Float - if water is present in the								
	sump, manually actuate the pump float to verify operation. Is the pump inlet clear of	4							
	obstructions?								
2	French Drain Outlet Pipe - is the outlet								
	pipe above the pool of water in the sump? Yes is normal.								
3	French Drain Outlet Pipe - is the pipe free								
	draining?								
	Q	UARTERLY	INSPECTION						
4	French Drain Sump - is sediment								
	collecting in the base of the sump?								
5	Flood Wall Waterstop and Joint Fillers -								
	are waterstops and joint fillers in good								
6	Flood Wall Inspection - Are there any								
U U	areas indicating seepage through the								
	floodwall or cracks or other signs of								
	damage?								
	Distal Monitoring Well Measurements	Depth to Water (feet below top	Total Depth (feet below top of casing)	Observations & Notes					
	MW-26	or casing)							
	MW-29								
	MW-31								
	MW-32								
	MW-33								
	MW-34								
	MW-35								
	MW-46								

#### Attachment 2

DAILY FRENCH DRAIN INSPECTION REPORT FORM										
Date/Time	Meter in Operation?	<b>Totalizer Flow</b>	Flow Rate	Name of Inspector						
		<u> </u>	<u> </u>							
	1	1	1							

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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solutions@golder.com

**Golder Associates Inc.** 820 S. Main Street, Suite 100 St. Charles, MO 63301 USA Tel: (636) 724-9191 Fax: (636) 724-9323



ATTCHMENT B FRENCH DRAIN WATER LABORATORY ANALYTICAL RESULTS





Order ID: 15040480 Date: 4/28/2015 Page 1 of 18

Tuesday, April 28, 2015

Exide Technologies David Mckercher P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

#### Re: Project Name: Raw Samples

Oxidor received 10 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
15040480-001	L042115-01	Liquid	4/21/2015 14:15	Sulfate, Total Dissolved Solids
15040480-002	L042115-02	Liquid	4/21/2015 14:15	Antimony, Arsenic, Cadmium, Lead, Selenium, Tin
15040480-003	S042115-01	Liquid	4/21/2015 14:25	Sulfate, Total Dissolved Solids
15040480-004	S042115-02	Liquid	4/21/2015 14:25	Antimony, Arsenic, Cadmium, Lead, Selenium, Tin
15040480-005	SPW042115-01	Liquid	4/21/2015 14:40	Sulfate, Total Dissolved Solids
15040480-006	SPW042115-02	Liquid	4/21/2015 14:40	Antimony, Arsenic, Cadmium, Lead, Selenium, Tin
15040480-007	FD042115-01	Liquid	4/21/2015 15:00	Sulfate, Total Dissolved Solids
15040480-008	FD042115-02	Liquid	4/21/2015 15:00	Antimony, Arsenic, Cadmium, Lead, Selenium, Tin
15040480-009	GW042115-01	Liquid	4/21/2015 15:20	Sulfate, Total Dissolved Solids
15040480-010	GW042115-02	Liquid	4/21/2015 15:20	Antimony, Arsenic, Cadmium, Lead, Selenium, Tin

#### Respectfully submitted,

Charles Brungardt President





#### **Analytical Report**

Customer Sample		115_01						
Ovider Semple		0400 004			Motrixy I	iou i d		
Oxidor Sample	ID. 15040	0460-001				liquia		
Sample Receive	ed: 4/22/2	2015		Sam	ple Collected: 4	/21/2015 14	:15	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Sulfate	1	1000	22700	mg/L	04/23/15 17:19	300.0	W.S.	D-1
Total Dissolved Solids	25	25.0	41600	mg/L	04/23/15 10:20	SM-2540-C	V.V.	





#### **Analytical Report**

Customer Samp Oxidor Samp Sample Rece	le ID: <b>L042</b> le ID: 1504 eived: 4/22/	<b>115-02</b> 0480-002 2015		Sam	Matrix: Li ble Collected: 4/	iquid /21/2015 14	4:15	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 0	4/23/15 at 09:26							
Antimony	0.005	0.005	1.61	mg/L	04/27/15 10:55	200.8	G.S.	
Arsenic	0.005	0.500	11.3	mg/L	04/23/15 16:13	200.8	G.S.	D-1
Cadmium	0.001	0.0010	0.0026	mg/L	04/27/15 10:55	200.8	G.S.	
Lead	0.005	0.005	0.041	mg/L	04/27/15 10:55	200.8	G.S.	
Selenium	0.005	0.0050	0.4487	mg/L	04/27/15 10:55	200.8	G.S.	
Tin	0.01	0.010	0.064	mg/L	04/27/15 10:55	200.8	G.S.	





#### **Analytical Report**

Customer Sample	ID: <b>S042</b>	115-01						
Oxidor Sample	ID: 1504	0480-003			Matrix: L	.iquid		
Sample Receive	ed: 4/22/2	2015		Sam	ple Collected: 4	/21/2015 14	:25	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Sulfate	1	1000	24700	mg/L	04/23/15 17:34	300.0	W.S.	D-1
Total Dissolved Solids	25	25.0	42800	mg/L	04/23/15 10:20	SM-2540-C	V.V.	





#### **Analytical Report**

Customer Samp Oxidor Samp Sample Reco	ble ID: <b>S042</b> ble ID: 1504 eived: 4/22/	<b>115-02</b> 0480-004 2015		Sam	Matrix: Li ble Collected: 4/	iquid /21/2015 14	1:25	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on	04/22/15 at 12:03							
Antimony	0.005	0.005	1.80	mg/L	04/23/15 10:43	200.8	G.S.	
Arsenic	0.005	0.050	2.04	mg/L	04/23/15 11:36	200.8	G.S.	D-1
Cadmium	0.001	0.0010	0.0011	mg/L	04/23/15 10:43	200.8	G.S.	
Lead	0.005	0.005	0.246	mg/L	04/23/15 10:43	200.8	G.S.	
Selenium	0.005	0.0050	0.5600	mg/L	04/23/15 10:43	200.8	G.S.	
Tin	0.01	0.010	0.045	mg/L	04/23/15 10:43	200.8	G.S.	





#### **Analytical Report**

Customer Sample	ID. SPW	042115-01						
Oxidor Sample	ID: 1504	0480-005			Matrix: L	iquid		
Sample Receive	ed: 4/22/2	2015		Sam	ple Collected: 4	/21/2015 14	:40	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Sulfate	1	10.0	48.4	mg/L	04/23/15 17:03	300.0	W.S.	D-1
Total Dissolved Solids	25	25.0	110	mg/L	04/23/15 10:20	SM-2540-C	V.V.	





#### **Analytical Report**

Customer Sample Oxidor Sample Sample Receiv	ID: <b>SPW</b> ID: 1504 ved: 4/22/2	<b>042115-02</b> 0480-006 2015	2	Sam	Matrix: Li ble Collected: 4/	iquid 21/2015 14	1:40	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 04/2	22/15 at 12:03							
Antimony	0.005	0.005	0.029	mg/L	04/23/15 10:48	200.8	G.S.	
Arsenic	0.005	0.005	0.011	mg/L	04/23/15 10:48	200.8	G.S.	
Cadmium	0.001	0.0010	0.0067	mg/L	04/23/15 10:48	200.8	G.S.	
Lead	0.005	0.005	0.284	mg/L	04/23/15 10:48	200.8	G.S.	
Selenium	0.005	0.0050	0.0110	mg/L	04/23/15 10:48	200.8	G.S.	
Tin	0.01	0.010	ND	mg/L	04/23/15 10:48	200.8	G.S.	





#### **Analytical Report**

Customer Sample	ID: <b>FD04</b>	2115-01						
Oxidor Sample	ID: 1504	0480-007			Matrix: L	iquid		
Sample Receive	ed: 4/22/2	2015		Sam	ple Collected: 4	/21/2015 15	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Sulfate	1	100	1010	mg/L	04/23/15 15:00	300.0	W.S.	D-1
Total Dissolved Solids	25	25.0	1780	mg/L	04/23/15 10:20	SM-2540-C	V.V.	





#### **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	2 <b>115-02</b> 0480-008 2015		Sam	Matrix: Li ble Collected: 4/	quid 21/2015 15	5:00		
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 04/22/15 a	at 12:03							
Antimony	0.005	0.005	0.088	mg/L	04/23/15 10:50	200.8	G.S.	
Arsenic	0.005	0.005	0.012	mg/L	04/23/15 10:50	200.8	G.S.	
Cadmium	0.001	0.0010	0.0097	mg/L	04/23/15 10:50	200.8	G.S.	
Lead	0.005	0.005	0.207	mg/L	04/23/15 10:50	200.8	G.S.	
Selenium	0.005	0.0050	0.0208	mg/L	04/23/15 10:50	200.8	G.S.	
Tin	0.01	0.010	ND	mg/L	04/23/15 10:50	200.8	G.S.	





#### **Analytical Report**

Customer Sample		12115_01						
						lave al al		
Oxidor Sample	ID: 1504	0480-009			Matrix: L	iquia		
Sample Receive	ed: 4/22/2	2015		Sam	ple Collected: 4	/21/2015 15	:20	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Sulfate	1	100	158	mg/L	04/23/15 15:46	300.0	W.S.	D-1
Total Dissolved Solids	25	25.0	505	mg/L	04/23/15 10:20	SM-2540-C	V.V.	





#### **Analytical Report**

Customer Sample ID Oxidor Sample ID Sample Received	<b>42115-02</b> 0480-010 2015		Sam	Matrix: Li ble Collected: 4/	quid 21/2015 15	5:20		
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 04/23/15	5 at 09:26							
Antimony	0.005	0.005	0.018	mg/L	04/23/15 16:15	200.8	G.S.	
Arsenic	0.005	0.005	ND	mg/L	04/23/15 16:15	200.8	G.S.	
Cadmium	0.001	0.0010	0.0078	mg/L	04/23/15 16:15	200.8	G.S.	
Lead	0.005	0.005	0.351	mg/L	04/23/15 16:15	200.8	G.S.	
Selenium	0.005	0.0050	ND	mg/L	04/23/15 16:15	200.8	G.S.	
Tin	0.01	0.010	ND	mg/L	04/23/15 16:15	200.8	G.S.	





#### **Sample Cross Reference**

Customer ID:	Lab ID:	Test	Method	QCBatchID:
L042115-01	15040480-001	Sulfate	300.0	IC07715_L
		Total Dissolved Solids	SM-2540-C	TDS04520_L
L042115-02	15040480-002	Cadmium	200.8	META_00254_L
		Arsenic	200.8	META_00254_L
		Lead	200.8	META_00254_L
		Selenium	200.8	META_00254_L
		Tin	200.8	META_00254_L
		Antimony	200.8	META_00254_L
S042115-01	15040480-003	Sulfate	300.0	IC07715_L
		Total Dissolved Solids	SM-2540-C	TDS04520_L
S042115-02	15040480-004	Tin	200.8	META_09753_L
		Selenium	200.8	META_09753_L
		Lead	200.8	META_09753_L
		Cadmium	200.8	META_09753_L
		Arsenic	200.8	META_09753_L
		Antimony	200.8	META_09753_L
SPW042115-01	15040480-005	Sulfate	300.0	IC07715_L
		Total Dissolved Solids	SM-2540-C	TDS04520_L
SPW042115-02	15040480-006	Lead	200.8	META_09753_L
		Selenium	200.8	META_09753_L
		Tin	200.8	META_09753_L
		Arsenic	200.8	META_09753_L
		Antimony	200.8	META_09753_L
		Cadmium	200.8	META_09753_L
FD042115-01	15040480-007	Sulfate	300.0	IC07715_L
		Total Dissolved Solids	SM-2540-C	TDS04520_L
FD042115-02	15040480-008	Antimony	200.8	META_09753_L
		Arsenic	200.8	META_09753_L
		Cadmium	200.8	META_09753_L
		Lead	200.8	META_09753_L
		Selenium	200.8	META_09753_L
		Tin	200.8	META_09753_L
GW042115-01	15040480-009	Sulfate	300.0	IC07715_L
		Total Dissolved Solids	SM-2540-C	TDS04520_L
GW042115-02	15040480-010	Tin	200.8	META_00254_L
		Arsenic	200.8	META_00254_L
		Cadmium	200.8	META_00254_L
		Lead	200.8	META_00254_L
		Selenium	200.8	META_00254_L
		Antimony	200.8	META_00254_L





#### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID IC07715_L								
Blank	Sulfate	ND mg/L							
LCS	Sulfate	15.1 mg/L		15 mg/L	101%	90-110%			
LCSD	Sulfate	15.0 mg/L		15 mg/L	100%	90-110%	1.0%	0-20%	
MS	Sulfate	16.1 mg/L	0.64 mg/L	15 mg/L	103%	80-120%			
MSD	Sulfate	15.2 mg/L	0.64 mg/L	15 mg/L	97%	80-120%	5.8%	0-20%	
QCBatch	ND TDS_04520_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	970 mg/L		1000 mg/L	97%	90-110%			
LCSD	Total Dissolved Solids	965 mg/L		1000 mg/L	97%	90-110%	0.5%	0-5%	
Replicate	Total Dissolved Solids	1140 mg/L	1140 mg/L				0.0%	0-5%	
QCBatch	ND META_00254_L								
Blank	Antimony	ND mg/L							
	Arsenic	ND mg/L							
	Cadmium	ND mg/L							
	Lead	ND mg/L							
	Selenium	ND mg/L							
	Tin	ND mg/L							
LCS	Antimony	0.106 mg/L		0.1 mg/L	106%	85-115%			
	Arsenic	0.108 mg/L		0.1 mg/L	108%	85-115%			
	Cadmium	0.1037 mg/L		0.1 mg/L	104%	85-115%			
	Lead	0.097 mg/L		0.1 mg/L	98%	85-115%			
	Selenium	0.0970 mg/L		0.1 mg/L	97%	85-115%			
	Tin	0.105 mg/L		0.1 mg/L	105%	85-115%			
LCSD	Antimony	0.106 mg/L		0.1 mg/L	106%	85-115%	0.2%	0-20%	
	Arsenic	0.107 mg/L		0.1 mg/L	107%	85-115%	0.9%	0-20%	
	Cadmium	0.1029 mg/L		0.1 mg/L	103%	85-115%	0.8%	0-20%	
	Lead	0.097 mg/L		0.1 mg/L	97%	85-115%	0.2%	0-20%	
	Selenium	0.1000 mg/L		0.1 mg/L	100%	85-115%	3.1%	0-20%	
	Tin	0.105 mg/L		0.1 mg/L	105%	85-115%	0.2%	0-20%	
MS	Antimony	0.526 mg/L	ND	0.5 mg/L	105%	80-120%			
	Arsenic	0.532 mg/L	0.002 mg/L	0.5 mg/L	106%	80-120%			
	Cadmium	0.5085 mg/L	ND	0.5 mg/L	102%	80-120%			
	Lead	0.483 mg/L	0.001 mg/L	0.5 mg/L	97%	80-120%			
	Selenium	0.4921 mg/L	0.003 mg/L	0.5 mg/L	98%	80-120%			
	Tin	0.477 mg/L	ND	0.5 mg/L	95%	80-120%			
MSD	Antimony	0.541 mg/L	ND	0.5 mg/L	108%	80-120%	2.8%	0-20%	
	Arsenic	0.554 mg/L	0.002 mg/L	0.5 mg/L	110%	80-120%	4.0%	0-20%	
	Cadmium	0.5188 mg/L	ND	0.5 mg/L	104%	80-120%	2.0%	0-20%	
	Lead	0.491 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%	1.6%	0-20%	
	Selenium	0.5298 mg/L	0.003 mg/L	0.5 mg/L	105%	80-120%	7.4%	0-20%	
	Tin	0.482 mg/L	ND	0.5 mg/L	96%	80-120%	1.0%	0-20%	
QCBatch	ID META 09753 I								





#### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_09753_L								
Blank	Antimony	ND mg/L							
	Arsenic	ND mg/L							
	Cadmium	ND mg/L							
	Lead	ND mg/L							
	Selenium	ND mg/L							
	Tin	ND mg/L							
LCS	Antimony	0.512 mg/L		0.5 mg/L	102%	85-115%			
	Arsenic	0.521 mg/L		0.5 mg/L	104%	85-115%			
	Cadmium	0.5003 mg/L		0.5 mg/L	100%	85-115%			
	Lead	0.492 mg/L		0.5 mg/L	98%	85-115%			
	Selenium	0.5146 mg/L		0.5 mg/L	103%	85-115%			
	Tin	0.509 mg/L		0.5 mg/L	102%	85-115%			
LCSD	Antimony	0.512 mg/L		0.5 mg/L	102%	85-115%	0.0%	0-20%	
	Arsenic	0.512 mg/L		0.5 mg/L	102%	85-115%	1.7%	0-20%	
	Cadmium	0.4968 mg/L		0.5 mg/L	99%	85-115%	0.7%	0-20%	
	Lead	0.484 mg/L		0.5 mg/L	97%	85-115%	1.6%	0-20%	
	Selenium	0.4791 mg/L		0.5 mg/L	96%	85-115%	7.1%	0-20%	
	Tin	0.512 mg/L		0.5 mg/L	102%	85-115%	0.5%	0-20%	
MS	Antimony	0.529 mg/L	ND	0.5 mg/L	106%	80-120%			
	Arsenic	0.534 mg/L	0.003 mg/L	0.5 mg/L	106%	80-120%			
	Cadmium	0.5004 mg/L	ND	0.5 mg/L	100%	80-120%			
	Lead	0.496 mg/L	ND	0.5 mg/L	99%	80-120%			
	Selenium	0.5098 mg/L	ND	0.5 mg/L	102%	80-120%			
	Tin	0.528 mg/L	ND	0.5 mg/L	106%	80-120%			
MSD	Antimony	0.519 mg/L	ND	0.5 mg/L	104%	80-120%	1.9%	0-20%	
	Arsenic	0.536 mg/L	0.003 mg/L	0.5 mg/L	107%	80-120%	0.4%	0-20%	
	Cadmium	0.4921 mg/L	ND	0.5 mg/L	98%	80-120%	1.7%	0-20%	
	Lead	0.497 mg/L	ND	0.5 mg/L	99%	80-120%	0.2%	0-20%	
	Selenium	0.4618 mg/L	ND	0.5 mg/L	92%	80-120%	9.9%	0-20%	
	Tin	0.513 mg/L	ND	0.5 mg/L	103%	80-120%	2.9%	0-20%	





#### **Case Narrative**

#### Project Name: Raw Samples

D-1 Elevated reporting limit(s) due to dilution. Dilution resulted from sample matrix interference, high target analyte(s), high nontarget analyte(s) or a combination thereof. Parts per million = mg/Kg or mg/L ppm Parts per billion = ug/Kg or ug/L ppb MQL Method quantitation limit SDL Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions) SQL Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution ND Analyte not detected at or above SQL LCS/LCSD Laboratory control spike / Laboratory control spike duplicate MS/MSD Matrix spike / Matrix spike duplicate RPD Relative percent difference Sub Analysis performed by subcontract laboratory Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





#### **Sample Preservation Verification**

Receipt temp: ( Receipt method: (	0.5 °C on Ice Customer Courier				
Custody seal intact:	Yes		All sample	es / labels rece	eived intact: Yes
Customer Sample ID:	L042115-01		Collected By:	Jose Aceved	0
Oxidor Sample ID:	15040480-001		Collector Affiliation:	Exide Techno	ologies
Collected:	04/21/15 14:15		Matrix:	Liquid	
				Indicated	
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	<u>pH</u>
1000 mL Pla	istic 1	Grab		None	-
Customer Sample ID:	L042115-02		Collected By:	Jose Aceved	D
Oxidor Sample ID:	15040480-002		Collector Affiliation:	Exide Techno	ologies
Collected:	04/21/15 14:15		Matrix:	Liquid	
				Indicated	
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	<u>pH</u>
500 mL Plas	stic 1	Grab		HNO3	<2
Customer Sample ID:	S042115-01		Collected By:	Jose Aceved	D
Oxidor Sample ID:	15040480-003		Collector Affiliation:	Exide Techno	ologies
Collected:	04/21/15 14:25		Matrix:	Liquid	
				Indicated	
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	<u>рН</u>
1000 mL Pla	astic 1	Grab		None	-
Customer Sample ID:	S042115-02		Collected By:	Jose Aceved	D
Oxidor Sample ID:	15040480-004		Collector Affiliation:	Exide Techno	ologies
Collected:	04/21/15 14:25		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>pH</u>
500 mL Plas	tic 1	Grab		HNO3	<2
Customer Sample ID:	SPW042115-01		Collected By:	Jose Aceved	D
Oxidor Sample ID:	15040480-005		Collector Affiliation:	Exide Techno	ologies
Collected:	04/21/15 14:40		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>pH</u>
1000 mL Pla	astic 1	Grab		None	-





#### **Sample Preservation Verification**

#### Project Name: Raw Samples

Customer Sample ID:	SPW042115-02		Collected By:	Jose Aceved	0		
Oxidor Sample ID:	15040480-006		Collector Affiliation: Exide Technologies				
Collected:	04/21/15 14:40		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>pH</u>		
500 mL Plast	tic 1	Grab		HNO3	<2		
Customer Sample ID:	FD042115-01		Collected By:	Jose Aceved	0		
Oxidor Sample ID:	15040480-007		Collector Affiliation:	Exide Techno	ologies		
Collected:	04/21/15 15:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>рН</u>		
1000 mL Pla	stic 1	Grab		None	-		
Customer Sample ID:	FD042115-02		Collected By:	Jose Aceved	0		
Oxidor Sample ID:	15040480-008		Collector Affiliation:	ologies			
Collected:	04/21/15 15:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>рН</u>		
500 mL Plast	tic 1	Grab		HNO3	<2		
Customer Sample ID:	GW042115-01		Collected By:	Jose Aceved	0		
Oxidor Sample ID:	15040480-009		Collector Affiliation:	Exide Techno	ologies		
Collected:	04/21/15 15:20		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>рН</u>		
1000 mL Pla	stic 1	Grab		None	-		
Customer Sample ID:	GW042115-02		Collected By:	Jose Aceved	0		
Oxidor Sample ID:	15040480-010		Collector Affiliation:	Exide Techno	ologies		
Collected:	04/21/15 15:20		Matrix:	Liquid			
				Indicated			
	• •	Collection Mathed	Barta / Intorval	Preservation	nH		
Bottle Type	Count	Conection Method	Fails / Interval	I TESEI Valion	<u>p11</u>		

Sample conditions at time of receipt at laboratory verified in part or in whole by:

J.G.





Order ID: 15040480 Date: 4/28/2015 Page 18 of 18

#### Documentation

#### PROJECT DESCRIPTION: Raw Samples

			10	ON / REMARKS	VERS ALL INTIA DOOL ≤ 6° C LS	Date	VO3 IA	one JA	AL NO3	lan¢	NO5	lone <u>i</u> A	NO3	vanc IA	VO3			R 4/3045 7146 R 4/3046 9:30 A A 7/22/5 11: 25 A 1122/5 11: 25 A 1122/5 11: 25 A 1122/5 11: 25 A 1126 114
	jevedo	Technologies	a Ocean	PRESERVATIO	A / CONTAIN SAMPLES C	N	全	Ž	盘	Z	H		H					REPRESENTING INSTRUCT COURLE AF C ULEPRESENTING C X 70 UT REPRESENTING
$\begin{split} & \begin{array}{c} & P_{1:0} \text{ for 230} \\ & P_{1:0} \text{ for 230} \\ & P_{1:0} \text{ for 231} \\ & P_{1:0} \text{ for 235-2121} \\ & P_{1:0}  for 235$	SIGNATURE: Q.		INT SJ	vi mastic siliziho	Al migstit Stiltsho	W mdszcz silicht	M W 52:25/124/10	11 mt of 2:40 mm	11 mg ar: 2 21/12/14	I ma are silverin	T vad socies starting	The offer	magazie:31/12/114			ELVED BY (Signature)		
	MS	JE INDUSINE:		ANALYSES REQUESTED pH	3.04, TDS 10.40	Pb,Cd,As,Sb,Sn,Se. 1.0.6	SO4. TDS 12-2 (	The Cd As Sh Su Se 12.2			Pb.Cd,As,Subah,Sec.	Pb,Cd,As,Sb,Sn,Se. 11,1	Pb,Cd,As,Sb,Sh,Se. 114	SO4, IUS / 3	Phy Ca, Ab, July July	@EXIDE.COM	-15 q:3.0 am 25 -15 q:	
	OULFALL	NATURE Construction		TIME (S) E	b waster	G	mdcht	2:25 pm	5152 bm 0	Zertorym G	Traise by C	300mpm 0	3,00.pm G	3:20.pm G	3+20pm 9	01.71S TO: DAVID MCKERCER	REPRESENTING DAT EXIDE 4-22 EXIDE 4-22 IUSTICE COURER 4	
	USTRY: EXIDE Technologies	RESS: 7471 Fifth Street Frisco, Texas 75034	USTRY REPRESENTATIVED : David	TELE No. / DATE (S) NTIFICAT	NOI	5/17/h0 10-5114h	043112-05 04/31/72	542115-01 04/21/15	042115:02 04/21/15	MOY2115-0 04/21/15	S+1.12/ 40 20-511240M	21/12/ 10 10251112	1042115-02 04 / 21-115	St/12/ 40 10-Sitchon	Woy2115-02 04/21-145	E-MAIL RESUMMATION	RELINQUISHED BY : (Signature) Don O. C.	

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAC# T104704227

ATTACHMENT C

LABORATORY ANALYTICAL RESULTS PROVIDED BY THE CITY OF FRISCO



#### DRAFT

#### SURFACE WATER, SOLIDS AND DISCHARGE WATER SAMPLING ACTIVITIES RESULTS SUMMARY

*For:* **Stewart Creek – Former Operating Plant** Frisco, Collin County, Texas

> Prepared for: City of Frisco c/o Russell & Rodriguez, L.L.P. 1633 Williams Drive Building 2, Suite 200 Georgetown, TX 78628

Prepared by: Apex TITAN, Inc. 2351 W. Northwest Highway, Suite 3321 Dallas, Texas 75220 (214) 350-5469 www.apexcos.com

> July 2, 2015 Project 7020112C079

# Figure 1

Stewart Creek FOP Surface Water, Solids and Discharge Water Sample Location Map



# DRAFT



City of Frisco Surface Water, Solids and Discharge Water Sampling Stewart Creek FOP Frisco, Texas



Apex TITAN, Inc. 2351 W. Northwest Highway Dallas, Texas 75220 Phone: (214) 350-5469

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#### FIGURE 1

Stewart Creek FOP Surface Water, Solids and Discharge Water Sample Location Map

Aerial Photograph March 2015

Project No. 7020112C079

C:\Users\jsimpson\Desktop\7020112C079\Figure 1.mxd 6/24/2015

# **Summary Tables**

Table 1 – Solid Sample Analytical ResultsTable 2 – Surface Water Analytical ResultsTable 3 – Surface Water Quality Parameters


	Table 1																
						Solid San	nple Analy	tical Resul	ts								
					Ste	wart Cree	k - Former	Operating	Plant								
							Frisco, Te>	as									
	DH Dercent Solids Antimony Arsenic Barium Berullium Cadmium Calcium Chromium Lead Magnesium Marcuny Nickel Solonium Silver Sulfate						Sulfate										
Sample ID	Date	(Unitless)	(%)	ma/ka	ma/ka	ma/ka	ma/ka	mg/kg	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka
TRRP Ecological Ben	chmarks for Sediment	NA	NA	2	9.79	NE	NE	0.99	NE	43.4	35.8	NE	0.18	22.7	NE	1	NA
TRRP Ecological Protec	tive Concentration Level	NA	NA	13.5*	21.4*	NE	NE	2.985*	NE	77.2*	81.9*	NE	0.62*	35.65*	NE	1.6*	NA
TCEQ Second Effects	Levels for Sediment	NA	NA	25	33	NE	NE	4.98	NE	111	128	NE	1.06	48.6	NE	2.2	NA
TRRP Human Health Concentra	Sediment Protective	NA	NA	83	24	23,000	27	1,100	NE	36,000	500 (250) <sup>1</sup>	NE	34	1,400	2,700*	350	NE
Maximum Concentrations Previously Detected in Sediment Near the Former Operating Plant (Source: Exide APAR (2014) and Interim Action Report (August 2014))		NA	NA	NA	57.9	NA	NA	4.53 J	NA	NA	19,100	NA	NA	NA	NA	NA	NA
TRRP Tier 1 Reside (30-Acre So	ential <sup>GW</sup> Soil <sub>ing</sub> PCL purce Area)	NA	NA	2.7**	3.1	220	0.92	30**	NE	1,200**	280	NE	0.0039	79**	1.6	0.24	NE
TRRP Tier 1 Resider	ntial <sup>Total</sup> Soil <sub>Comb</sub> PCL	NA	NA	15	24	8,100	38	52	NE	27,000	500	NE	2.1	840	310	97	NE
Site-Specific	Background	NA	NA	1	15.9**	NE	NE	NE	NE	NE	31.5**	NE	NE	NE	NE	NE	NE
Frisco Backgroun	d Concentrations	NA	NA	NE	8.6	161	NE	0.4	NE	32.7	13.7	NE	0.019	NE	2.1**	0.44**	NE
TRRP Texas-Spe	cific Background	NA	NA	1	5.9	300**	1.5**	NE	NE	30	15	NE	0.04**	10	0.3	NE	NE
Maximum Concent Detecter	rations Previously d In Soil	NA	NA	102	115	131	0.806	984	NA	22.4	95,000	NA	0.013 J	12.4	29.2	NA	8,710
		-				Total	Metals and	l Sulfate									
2015-COF-SOLID-01 (0-0.25)	6/8/2015	8.70	57.8	0.085 J	5.0	224	<0.024	1.7	342,000	0.54	1,030	2,130	<0.021	2.6	0.66 J	<0.031	75.2
2015-COF-SOLID-02 (0-0.25)	6/8/2015	10.03	54.7	0.12 J	10.1	226	<0.025	0.23 J	335,000	0.36 J	870	3,780	<0.021	2.2	1.1	<0.033	311
Toxicity Characteristic Leaching Procedure (TCLP)																	
		рН	Percent Solids	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Lead	Magnesium	Mercury	Nickel	Selenium	Silver	Sulfate
Sample ID	Date	(Unitless)	(%)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
TCLP Regul	atory Levels	< 2 or > 12.5		NE	5.0	100.0	NE	1.0	NE	5.0	5.0	NE	0.2	NE	1.0	5.0	NE
TCEQ Class 1 Toxic C Leachable Co	onstituents' Maximum oncentrations	NE	NA	1	1.8	100.0	0.08	0.5	NE	5.0	1.5	NE	0.2	70	1.0	5.0	NE
2015-COF-SOLID-01	0/0/0015	0.70	57.0	0.0054	0.0074	0.40	0.00000	0.0070.1	N1/A	0.0010.1	0.4.4	N1/A	0.000050	0.000 1	0.0040	0.0010	N1/A

NE - Not Established

N/A - Not Analyzed

NA - Not Applicable

mg/Kg - miligrams per kilogram

(0-0.25) 2015-COF-SOLID-02

(0-0.25)

\* Applicable Sediment PCL

\*\* Applicable Soil PCL

Italicized RBEL or PCL - RBEL or PCL listed in Table 7A of Exide's APAR dated May 2014

6/8/2015

6/8/2015

Maximum concentrations based on Exide's APAR dated May 2014

Bold and shading indicates a concentration above the TRRP Ecological Benchmark for Sedime
-------------------------------------------------------------------------------------------

8.70

10.03

Bold and shading indicates a concentration above the TRRP Critical Protective Concentration Level.

Bold and shading indicates a concentration above the TCEQ Second Effects Level for sediment.

Bold and shading indicates a concentration above the TRRP Human Health Sediment Protective Concentration Levels.

57.8

54.7

<0.0051

0.0074 J

<0.0051 <0.0050

0.48 J

0.46 J

<0.00080

<0.00080

0.0070 J

0.0011 J

N/A

N/A

0.0049 J

< 0.0014

0.14

0.23

N/A

N/A

<0.000050

<0.000050

0.020 J

0.013 J

<0.0049

< 0.0049

N/A

N/A

< 0.0012

< 0.0012

Italicized and gray shading indicates a concentration detected above a Critical soil PCL (if evaluated as a soil sample).

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

<sup>1</sup> - Based on an agreement between the City of Frisco and Exide Technologies, Inc., the Tier 1 Human Health PCL was established as 250 mg/Kg.

Benchmarks obtained from the TCEQ guidance document Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised Draft), dated January 2014.

Site-Specific Background concentrations obtained from a letter to TCEQ titled Revised Site-specific Background Soil Concentration Evaluation , dated May 30, 2013, prepared by PBW, L.L.C.

Frisco Background Concentrations obtained from the Background Study report prepared by Southwest Geoscience, dated March 4, 2014

Table 2 Surface Water Analytical Results Stewart Creek - Former Operating Plant Frisco, Texas															
Sample ID	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Lead	Magnesium	Mercury	Nickel	Selenium	Silver	Sulfate
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Acute Aquati	c Life RBEL	NE	0.340 <sup>1</sup>	NE	NE	0.00908 <sup>2</sup>	NE	NE	0.0688 <sup>2</sup>	NE	0.0024 <sup>1</sup>	0.00079 <sup>2+</sup>	0.020 <sup>1</sup>	0.0008 <sup>1*</sup>	NE
Chronic Aquat	tic Life RBEL	NE	0.150 <sup>1</sup>	NE	NE	0.000256 <sup>2*</sup>	NE	NE	0.00268 <sup>2*</sup>	NE	0.0013 <sup>1*</sup>	0.000602+*	0.005 <sup>1*</sup>	NE	NE
Human Health RBEL	Values (Fish Only)	10.71 <sup>3</sup>	NE	NE	NE	NE	NE	NE	0.0383 <sup>3</sup>	NE	0.000122 <sup>3</sup>	11.4 <sup>3</sup>	NE	NE	NE
TRRP Human Health Co	ontact Recreation PCL	0.199 <sup>4*</sup>	0.02854*	64.9 <sup>4*</sup>	0.0943 <sup>4*</sup>	0.149 <sup>4</sup>	NE	126 <sup>4</sup>	0.015 <sup>5</sup>	NE	0.0973 <sup>5</sup>	11.3 <sup>5</sup>	4.13 <sup>4</sup>	<b>1.57<sup>4</sup></b>	NE
Maximum Concentratior (Source: Exide	ns Previously Detected APAR (2014))	NA	0.00393	NA	NA	0.002 J	NA	NA	0.0046 J	NA	NA	NA	NA	NA	127
						Dissolved	d Metals								
2015-COF-DW-01	6/8/2015	0.0274	0.0097	0.0128	<0.00026	0.0043	9.33	0.0020	0.0487	1.76	<0.000050	0.0022 J	0.0069	<0.00020	N/A
2015-COF-SW-01	6/8/2015	<0.00072	0.00095 J	0.0936	<0.00026	<0.00027	142	0.00065 J	<0.00048	5.84	<0.000050	0.0014 J	0.0014 J	<0.00020	N/A
2015-COF-SW-02	6/8/2015	<0.00072	0.0014 J	0.0870	<0.00026	<0.00027	128	0.00042 J	0.00220	5.52	<0.000050	0.0014 J	0.0014 J	<0.00020	N/A
Total Metals and Sulfate															
2015-COF-DW-01	6/8/2015	0.0213	0.0158	0.115	0.00051 J	0.0228	24.1	0.0253	0.765	9.51	<0.000050	0.0179	0.0068	<0.00020	856
2015-COF-SW-01	6/8/2015	<0.00072	0.0010 J	0.0949	<0.00026	<0.00027	143	0.00036 J	0.002	5.79	<0.000050	0.0014 J	0.0011 J	<0.00020	1190
2015-COF-SW-02	6/8/2015	<0.00072	0.0014 J	0.0960	< 0.00026	< 0.00027	143	0.00040 J	0.0123	5.83	< 0.000050	0.0015 J	0.0014 J	< 0.00020	1190

N/A - Not Analyzed

NA - Not Applicable

NE - Not Established

mg/L - miligrams per liter

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

\* Applicable Surface Water PCL

Italicized RBEL or PCL - RBEL or PCL listed in Table 6A of Exide's APAR dated May 2014

Maximum Concentrations Detected based on Exide's APAR dated May 2014

Bold and shading indicates a concentration above the Acute Aquatic Life RBEL for Surface Water.

Bold and shading indicates a concentration above the TRRP Critical Protective Concentration Level (Chronic Aquatic Life RBEL).

Bold and shading indicates a concentration above the TCEQ Human Health RBEL values.

Bold and shading indicates a concentration above the TRRP Human Health Surface Water Protective Concentration Levels.

Gray shading indicates dissolved metals samples.

<sup>1</sup> - TCEQ Aquatic Life RBELs - Texas Surface Water Quality Standards, 2014

<sup>2</sup> - Calculated RBEL (Assuming a Hardness of 106 mg/L) - Texas Surface Water Quality Standards, 2014

<sup>2+</sup> - Calculated RBEL by Apex (Assuming a Hardness of 106 mg/L) - Texas Surface Water Quality Standards, 2014

<sup>3</sup> - TCEQ Human Health RBELs, 2014 (Assuming a Second Order Perennial Stream)

<sup>4</sup> - TCEQ Tier 1 Contact Recreation Water PCLs, March 2006

<sup>5</sup> - Contact Recreation PCL Not Established - Drinking Water Standard Utilized

<sup>6</sup> - Based on Maximum Contaminant Levels (MCLs) specified in 30 TAC §290 (relating to Public Drinking Water)



# Surface Water and Discharge Water Analytical Results

# Accutest Laboratories Report Dated June 23, 2015

# Accutest Job Number: TC68547





06/23/15

## Technical Report for

APEX TITAN, Inc.

7020112C079 / Stewart Creek

7020112C079

Accutest Job Number: TC68547



Sampling Date: 06/08/15

Report to:

APEX TITAN, Inc. 2351 W. Northwest Hwy Suite 3321 Dallas, TX 75220 JMinter@apexcos.com

ATTN: Jason Minter

## Total number of pages in report: 40





Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-15-21, 1M104704220-15-2) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

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Gulf Coast • 10165 Harwin Drive • Suite 150 • Houston, TX 77036 • tel: 713-271-4700 • fax: 713-271-4770 • http://www.accutest.com



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# Sample Summary

## APEX TITAN, Inc.

**Job No:** TC68547

7020112C079 / Stewart Creek Project No: 7020112C079

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
TC68547-1	06/08/15	18:53	06/10/15	AQ	Water	2015-COF-SW-01
TC68547-1F	06/08/15	18:53	06/10/15	AQ	Water Filtered	2015-COF-SW-01
TC68547-2	06/08/15	19:55	06/10/15	AQ	Water	2015-COF-SW-02
TC68547-2F	06/08/15	19:55	06/10/15	AQ	Water Filtered	2015-COF-SW-02
TC68547-3	06/08/15	20:50	06/10/15	AQ	Water	2015-COF-DW-01
TC68547-3F	06/08/15	20:50	06/10/15	AQ	Water Filtered	2015-COF-DW-01





## SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	APEX TITAN, Inc.	Job No	TC68547
Site:	7020112C079 / Stewart Creek	Report Date	6/23/2015 9:39:42 AM

3 Samples were collected on 06/08/2015 and received intact at Accutest on 06/10/2015 and properly preserved in 1 cooler at 0.8 Deg C. These Samples received an Accutest job number of TC68547. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

## Metals By Method SW846 6020A

|--|

All samples were digested within the recommended method holding time.

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68547-1MS, TC68547-1MSD, TC68547-1SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Arsenic, Chromium, Lead, Nickel, Selenium are outside control limits for sample MP26096-SD1.
   Percent difference acceptable due to low initial sample concentration (< 50 times IDL).</li>
- RPD(s) for Serial Dilution for Barium, Magnesium are outside control limits for sample MP26096-SD1. Serial dilution indicates possible matrix interference.

## Metals By Method SW846 7470A

	Matrix AQ	Batch ID:	MP26097			
-	All samples were digested within the recommended method holding time.					
-	All samples were analyzed within the recommended method holding time.					
-	All method blanks for this batch meet method specific criteria.					
-	Sample(s) TC68547-1MS, TC6	8547-1MSD were used as t	the QC samples for metals.			

## Wet Chemistry By Method EPA 300

Matrix AQ	Batch ID: GP32525	

All samples were prepared within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68707-10DUP, TC68707-10MS were used as the QC samples for Sulfate.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



# **Summary of Hits**

Job Number:	TC68547
Account:	APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek
Collected:	06/08/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC68547-1	2015-COF-SW-01					
Arsenic Barium		0.0010 J 0.0949	0.0040 0.0020	0.00054 0.00019	mg/l mg/l	SW846 6020A SW846 6020A
Chromium Lead Magnesium		143 0.00036 J 0.0020 5.79	0.50 0.0020 0.0020 0.50	0.019 0.00013 0.00048 0.014	mg/l mg/l mg/l	SW 846 6020A SW 846 6020A SW 846 6020A SW 846 6020A
Nickel Selenium Sulfate		0.0014 J 0.0011 J 1190	0.0040 0.0040 25	0.0014 0.00010 0.00054 13	mg/l mg/l mg/l	SW846 6020A SW846 6020A SW846 6020A EPA 300
TC68547-1F	2015-COF-SW-01				-	
Arsenic Barium Calcium Chromium Magnesium Nickel Selenium		0.00095 J 0.0936 142 0.00065 J 5.84 0.0014 J 0.0014 J	0.0040 0.0020 0.50 0.0020 0.50 0.0040 0.0040	0.00054 0.00019 0.019 0.00013 0.014 0.00010 0.00054	mg/l mg/l mg/l mg/l mg/l mg/l	SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A
TC68547-2	2015-COF-SW-02				C	
Arsenic Barium Calcium Chromium Lead Magnesium Nickel Selenium Sulfate		0.0014 J 0.0960 143 0.00040 J 0.0123 5.83 0.0015 J 0.0014 J 1190	$\begin{array}{c} 0.0040\\ 0.0020\\ 0.50\\ 0.0020\\ 0.0020\\ 0.50\\ 0.0040\\ 0.0040\\ 25 \end{array}$	0.00054 0.00019 0.019 0.00013 0.00048 0.014 0.00010 0.00054 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A EPA 300
TC68547-2F	2015-COF-SW-02					
Arsenic Barium Calcium Chromium Lead Magnesium Nickel Selenium		0.0014 J 0.0870 128 0.00042 J 0.0022 5.52 0.0014 J 0.0014 J	0.0040 0.0020 0.50 0.0020 0.0020 0.50 0.0040 0.0040	0.00054 0.00019 0.019 0.00013 0.00048 0.014 0.00010 0.00054	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A

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# **Summary of Hits**

Job Number:	TC68547
Account:	APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek
Collected:	06/08/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC68547-3	2015-COF-DW-01					
Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Lead Magnesium Nickel Selenium Sulfate		0.0213 0.0158 0.115 0.00051 J 0.0228 24.1 0.0253 0.765 9.51 0.0179 0.0068 856	$\begin{array}{c} 0.0040\\ 0.0040\\ 0.0020\\ 0.0020\\ 0.0020\\ 0.50\\ 0.0020\\ 0.0020\\ 0.0020\\ 0.50\\ 0.0040\\ 0.0040\\ 25 \end{array}$	0.00072 0.00054 0.00019 0.00026 0.00027 0.019 0.00013 0.00048 0.014 0.00010 0.00054 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SW846 6020A SW846 6020A
TC68547-3F	2015-COF-DW-01				8	
Antimony Arsenic Barium Cadmium Calcium Chromium Lead Magnesium Nickel Selenium		0.0274 0.0097 0.0128 0.0043 9.33 0.0020 0.0487 1.76 0.0022 J 0.0069	$\begin{array}{c} 0.0040\\ 0.0040\\ 0.0020\\ 0.0020\\ 0.50\\ 0.0020\\ 0.0020\\ 0.0020\\ 0.50\\ 0.0040\\ 0.0040\\ \end{array}$	0.00072 0.00054 0.00019 0.00027 0.019 0.00013 0.00048 0.014 0.00010 0.00054	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SW846 6020A SW846 6020A

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**Section 4** 

4



Sample Results

Report of Analysis



Client Sample ID:	2015-COF-SW-01		
Lab Sample ID:	TC68547-1	Date Sampled:	06/08/15
Matrix:	AQ - Water	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

# **Report of Analysis**

**Total Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.00072 U	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.0010 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.0949	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00026 U	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.00027 U	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	143	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.00036 J	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.0020	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	5.79	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Nickel	0.0014 J	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0011 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097

4.1 4



U = Indicates a result < SDL

Accutest Laboratories

Client Sample ID: Lab Sample ID: Matrix: Project:	2015-COF-SW-01 TC68547-1 AQ - Water 7020112C079 / Stewar	rt Creek		Date Sampled:06/08/15Date Received:06/10/15Percent Solids:n/a			
General Chemistry	7						
Analyte	Result	MQL	SDL	Units	DF	Analyzed By Method	
Sulfate	1190	25	13	mg/l	50	06/18/15 15:34 ES EPA 300	

# **Report of Analysis**





Client Sample ID:	2015-COF-SW-01		
Lab Sample ID:	TC68547-1F	Date Sampled:	06/08/15
Matrix:	AQ - Water Filtered	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

# **Report of Analysis**

**Dissolved Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.00072 U	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.00095 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.0936	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00026 U	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.00027 U	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	142	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.00065 J	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.00048 U	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	5.84	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A $^4$
Nickel	0.0014 J	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0014 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097

4.2



U = Indicates a result < SDL

 $J = Indicates \ a \ result > = \ SDL \ but < \ MQL$ 

Client Sample ID:	2015-COF-SW-02		
Lab Sample ID:	TC68547-2	Date Sampled:	06/08/15
Matrix:	AQ - Water	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

**Total Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.00072 U	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.0014 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.0960	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00026 U	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.00027 U	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	143	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.00040 J	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.0123	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	5.83	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A $^4$
Nickel	0.0015 J	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0014 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097

4.3 4



Accutest Laboratories

Client Sample ID: Lab Sample ID: Matrix: Project:	2015-COF-SW-02 TC68547-2 AQ - Water 7020112C079 / Stewa	rt Creek		Date Sampled:06/08/15Date Received:06/10/15Percent Solids:n/a			
General Chemistry	7						
Analyte	Result	MQL	SDL	Units	DF	Analyzed By Method	
Sulfate	1190	25	13	mg/l	50	06/18/15 15:51 ES EPA 300	

# **Report of Analysis**



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# **Report of Analysis**

Client Sample ID:	2015-COF-SW-02		
Lab Sample ID:	TC68547-2F	Date Sampled:	06/08/15
Matrix:	AQ - Water Filtered	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

**Dissolved Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.00072 U	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.0014 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.0870	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00026 U	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.00027 U	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	128	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.00042 J	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.0022	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	5.52	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Nickel	0.0014 J	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0014 J	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Shiver	0.00020 0	0.0020	0.00020	11 <u>5</u> /1	4	00/15/15	00/10/15	LO	5 W 040 0020A	5 10 040 JUIUA

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097

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Client Sample ID:	2015-COF-DW-01		
Lab Sample ID:	TC68547-3	Date Sampled:	06/08/15
Matrix:	AQ - Water	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

# **Report of Analysis**

**Total Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.0213	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.0158	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.115	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00051 J	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.0228	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	24.1	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.0253	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.765	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	9.51	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Nickel	0.0179	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0068	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A $^{3}$

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097





Accutest Laboratories

Client Sample ID: Lab Sample ID: Matrix: Project:	2015-COF-DW-01 TC68547-3 AQ - Water 7020112C079 / Stewa	art Creek		Date Sampled:06/08/15Date Received:06/10/15Percent Solids:n/a				
General Chemistry	7							
Analyte	Result	MQL	SDL	Units	DF	Analyzed By Method		
Sulfate	856	25	13	mg/l	50	06/18/15 16:30 ES EPA 300		

# **Report of Analysis**



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-			
<b>Client Sample ID:</b>	2015-COF-DW-01		
Lab Sample ID:	TC68547-3F	Date Sampled:	06/08/15
Matrix:	AQ - Water Filtered	Date Received:	06/10/15
		Percent Solids:	n/a
Project:	7020112C079 / Stewart Creek		

# **Report of Analysis**

**Dissolved Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	0.0274	0.0040	0.00072	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Arsenic	0.0097	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Barium	0.0128	0.0020	0.00019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Beryllium	0.00026 U	0.0020	0.00026	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Cadmium	0.0043	0.0020	0.00027	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Calcium	9.33	0.50	0.019	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Chromium	0.0020	0.0020	0.00013	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Lead	0.0487	0.0020	0.00048	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Magnesium	1.76	0.50	0.014	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Mercury	0.000050 U	0.00020	0.000050	)mg/l	1	06/15/15	06/15/15	CC	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Nickel	0.0022 J	0.0040	0.00010	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Selenium	0.0069	0.0040	0.00054	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>
Silver	0.00020 U	0.0020	0.00020	mg/l	2	06/15/15	06/16/15	EG	SW846 6020A <sup>2</sup>	SW846 3010A <sup>3</sup>

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11105

(3) Prep QC Batch: MP26096

(4) Prep QC Batch: MP26097

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**Section 5** 

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Misc.	Forms	
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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



			~~~ <i>E</i> /Q	1 100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CHAIN OF CUSTODY RECORD
	Laboratory: Accutel	5C	ANALYSIS REQUESTED	meeters	Lab use only Due Date:
	Address:		m Sun		Temp. of coolers when received (C°):
<u> </u>	Contact:		E.	8	
Dollas	Phone: 713-271-	-4700	3 2 4	¥ / / /	Pageof
Project Manager 2-50 mpson	PO/SO #:			\$///	// TC108541
Sampler's Name	Sampler's Signature		N E E		1000
Project Name	- posto	No/Type of Containers	- <u>5</u> 78		
pozouzcoza gravore cree	i i	Nortype of Comainers	A 3 4		
Matrix Date Time O r ldentifying Mar	rks of Sample(s) Start Depth	VOA A/G 1.L. 250 ml Glass Jar P/O	The state		Lab Sample ID (Lab Use Only)
W 65-15 1853 × 2015-COP		4	* * *		
W 6-8-15 1955 × 2015-COF	-500-02 -	4	* * *		
, W 6-8-15 2050 4 2015-COF	-DW-01 -	4	XXX		
W Temp Ed	ank	ιι			
A stars					
Turn around time VanNormal a 25% Rush	] 50% Rush 🛄 100% Rush				
Relinquished by (Signature) Date:	Time: Received by: (Signa	ature) Date:	Time: NOTES:	\$6170	1279 6104
Heminiquisnee by (Signature) Uate: COCX 410 15 C	100 Hereived by: (Signa	Henry yww	UGOU		
Relinquished by (Signature) Date:	Time: Received by: (Signa	ature) / Date:	Time:		
Relinquished by (Signature) Date:	Time: Received by: (Signa	ature) Date:	Time:		
Matrix WW - Wastewater W - Water S Container VOA - 40 mi vial A/G - Amber / C	S - Soil SD - Solid L - Liqui Glass 1 Liter 250 ml -	id A - Air Bag C - Ch - Glass wide mouth P/O -	arcoal tube SL - sludgi Plastic or other	e O - Oil	

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TC68547: Chain of Custody Page 1 of 3



5.1 5



## Accutest Laboratories Sample Receipt Summary

Page 1 of 2

Accutest Job Number:		TC68547	Client:	APEX	Project:	SEAWORTCREEK
Date / Time Ree	ceived:	6/10/2015		Delivery Method:	Airbill #'s:	617012796104
No. Coolers:	1	Therm ID:	IR-5;		Temp Adjus	stment Factor: 0;
O I T	/	#1. (0.9)	0 0).			

Cooler Temps (Initial/Adjusted): #1: (0.8/0.8);

Cooler Security Y	or N				<u>Y</u> c	r N	Sample Integrity - Documentation	<u>Y</u> (	or N	
1. Custody Seals Present:       ✓         2. Custody Seals Intact:       ✓		] 3. ] 4. Sn	COC Pre	esent: /Time OK	<ul><li>✓</li></ul>		<ol> <li>Sample labels present on bottles:</li> <li>Container labeling complete:</li> </ol>	<b>&gt;</b>		
Cooler Temperature	Y	or N					3. Sample container label / COC agree:	$\checkmark$		
1. Temp criteria achieved:	✓						Sample Integrity - Condition	<u>Y</u> (	or N	
2. Cooler temp verification:							1. Sample recvd within HT:	$\checkmark$		
3. Cooler media:	ŀ	ce (Bag)					2. All containers accounted for:	$\checkmark$		
Quality Control Preservation	Y	or N	N/A		WTB	STB	3. Condition of sample:	In	tact	
1. Trip Blank present / cooler:			$\checkmark$				Sample Integrity - Instructions	Yo	or N	N/A
2. Trip Blank listed on COC:			$\checkmark$				1. Analysis requested is clear:	$\checkmark$		
3. Samples preserved properly:	$\checkmark$						2. Bottles received for unspecified tests		$\checkmark$	
4. VOCs headspace free:			$\checkmark$				3. Sufficient volume recvd for analysis:	$\checkmark$		
							4. Compositing instructions clear:			$\checkmark$
							5. Filtering instructions clear:			

Accutest Laboratories V:713.271.4700 10165 Harwin Drive F: 713.271.4770 Houston, TX 77036 www/accutest.com

TC68547: Chain of Custody Page 2 of 3





## Sample Receipt Log

Page 2 of 2

5.<u>1</u>

G

Job #: TC68547

Date / Time Received: 6/10/2015 9:00:00 AM

Initials: BH

Client: APEX

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC68547-1	500ml	1	M3B	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-1	500ml	2	МЗВ	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-1	500ml	3	M3B	HNO3	pH < 2	IR-5	0.8	0	0.8
1	TC68547-1	500ml	4	M3B	HNO3	pH < 2	IR-5	0.8	0	0.8
1	TC68547-2	500ml	1	M3B	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-2	500ml	2	M3B	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-2	500ml	3	M3B	HNO3	pH < 2	IR-5	0.8	0	0.8
1	TC68547-2	500ml	4	M3B	HNO3	pH < 2	IR-5	0.8	0	0.8
1	TC68547-3	500ml	1	МЗВ	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-3	500ml	2	M3B	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68547-3	500ml	3	M3B	HNO3	pH < 2	IR-5	0.8	0	0.8
1	TC68547-3	500ml	4	МЗВ	HNO3	pH < 2	IR-5	0.8	0	0.8

## TC68547: Chain of Custody Page 3 of 3



# Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review sheeklist, and the following reportable date

TC68547 This data package consists of

÷ .	11113 312	filature page, the laboratory review	checkist, and the following reportable data.
Ū.	R1	Field chain-of-custody docume	ntation;
	R2	Sample identification cross-refe	erence;
	R3	Test reports (analytical data sh	eets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
Ū.	R4	Surrogate recovery data includ	ing:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
Ū.	R5	Test reports/summary forms for	r blank samples;
Ū.	R6	Test reports/summary forms for	r laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
Ģ	R7	Test reports for project matrix s	pike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ū.	R8	Laboratory analytical duplicate	(if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9	List of method quantitation limit	ts (MQLs) and detectability check sample results for each analyte for each
<b>_</b>	R10	Other problems or anomalies.	

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Report. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld.

Check, if applicable: This laboratory meets an exception under 30 TAC&25.6 and was last inspection by

[X] TCEQ or [] \_\_\_\_\_\_ on April 2011. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

QA Manager

[]

Name (Printed)

Signature

Richard Rodriguez

ling

Official Title (printed)

Laboratory Director

Date

6/23/2015

5.2



	LABORATORY REVIEW CHECKLIST: REPORTABLE DATA											
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	6/2	3/20	15						
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	тс	6854	7						
				GP3	2525	, MP2	26096	S,				
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	MP2	6097							
# <sup>1</sup>	A <sup>2</sup>	DESCRIPTION		YES	NO	NA <sup>3</sup>	NR <sup>4</sup>	ER # <sup>5</sup>				
R1	OI	CHAIN-OF-CUSTODY (C-O-C):										
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	x								
		upon receipt?		^								
		Were all departures from standard co	onditions described in an exception report?	Х								
R2	OI	Sample and quality control (QC) id	lentification									
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х								
		Are all laboratory ID numbers cross-r	eferenced to the corresponding QC data?	Х								
R3	OI	Test reports										
		Were samples prepared and analyze	d within holding times?	Х								
		Other than those results <mql, th="" were<=""><th>all other raw values bracketed by calibration</th><th>x</th><th></th><th></th><th></th><th></th></mql,>	all other raw values bracketed by calibration	x								
		standards?		^								
		Were calculations checked by a peer	or supervisor?	Х								
		Were all analyte identifications check	ked by a peer or supervisor?	Х								
		Were sample detection limits reporte	d for all analytes not detected?	Х								
		Were all results for soil and sediment			Х							
		Were % moisture (or solids) reported			Х							
		Were bulk soils/solids samples for vo	platile analysis extracted with methanol per			х						
		SW846 Method 5035?	aportod?			V						
<b>D</b> 4	_	If required for the project, are TIC's re	eponed?			X						
<u>R4</u>	0	Surrogate recovery data	ation?			V						
		Were surrogate percept recoveries in	cilon?			 						
D5	0	Test reports/summary forms for b				^						
KJ	0	Were appropriate type(s) of blanks an	nalizad?	V	1							
		Were blanks analyzed at the appropri	riate frequency?	$\hat{\mathbf{v}}$								
		Were method blanks taken through t	he entire analytical process including									
		preparation and if applicable cleanu	in procedures?	X								
		Were blank concentrations < MOL?		x								
R6	01	Laboratory control samples (LCS)										
	<u>.</u>	Were all COCs included in the LCS?	-	X								
		Was each LCS taken through the ent	tire analytical procedure, including prep and	~								
		cleanup steps?		X								
		Were LCSs analyzed at required free	quency?	Х								
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х								
		Does the detectablility check sample	data document the laboratory's capability to	v								
		detect the COCs at the MDL used to	calculate the SDLs?	^								
		Was the LCSD RPD within QC limits	?			Х						
R7	OI	Matrix spike (MS) and matrix spike	e duplicate (MSD) data									
		Were the project/method specified an	nalytes included in the MS and MSD?	X								
		Were MS/MSD analyzed at the appro	opriate frequency?	X								
		Were MS (and MSD, if applicable) %	Rs within the laboratory QC Limits?	X								
		Were the MS/MSD RPDs within labo	ratory QC limits?	X								
R8	0	Analytical duplicate data										
		Were appropriate analytical duplicate	es analyzed for each matrix?	X								
		Were analytical duplicates analyzed	at the appropriate frequency?	X								
	0	Were RPDs or relative standard devi	ations within the laboratory QC limits?	X								
<u> </u>	0	Method quantitation limits (MQLS)	to included in the leberatory data peakage?	V	1							
		Are the MQLs for each method analy	te included in the laboratory data package?									
		Do the MQLs correspond to the concentration of the lowest non-zero calibration						2				
R10	0	Other problems/anomaliae	adea in the laboratory data package:					4				
		Are all known problems/anomalies/er	pecial conditions noted in this LRC and EP2	V								
		Was applicable and available techno	logy used to lower the SDL to minimize the	Ŷ								
		Is the laboratory NELAC-accredited	Inder the Texas Laboratory Accreditation									
		Program for the analytes matrices a	nd methods associated with this laboratory	x				3				
		data nackade?	The meanous associated with this laboratory	^				5				
	L	saia puonago.										



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	6/2	23/20	15		
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	TC	685	47		
				GP3	2525	, MP	2609	6,
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	MP2	6097	7		
# <sup>1</sup>	A <sup>2</sup>	DESCRIPTION		YES	NO	NA <sup>3</sup>	NR <sup>4</sup>	ER #
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relativ	ve response factors for each analyte within QC	V	1			
		limits?		^				
		Were percent RSDs or correlation c	oefficient criteria met?	X				
		Was the number of standards recon	nmended in the method used for all analytes?	X				
		Were all points generated between t	the lowest and highest standard used to					
		calculate the curve?						
		Are ICAL data available for all instru	ments used?	X				
		Has the initial calibration curve beer	n verified using an appropriate second source	×				
		standard?		^				
S2	OI	Initial and continuing calibration						
		Was the CCV analyzed at the method	od-required frequency?	Х				
		Were percent differences for each a	nalyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each	h analyte?	X				
		Was the absolute value of the analy		Х			5	
S3	0	Mass spectral tuning						
		Was the appropriate compound for t	the method used for tuning?			Х		
		Were ion abundance data within the	e method-required QC limits?			Х		
S4	0	Internal standards (IS)						
		Were IS area counts and retention ti	imes within the method-required QC limits?			Х		
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chr	omatograms, spectral data) reviewed by an	v				
		analyst?						
		Were data associated with manual i	ntegrations flagged on the raw data?	Х				
S6	0	Dual column confirmation						
		Did dual column confirmation result	s meet the method-required QC?			Х		
S7	0	Tentatively identified compounds						
		If TICs were requested, were the ma			x			
		checks?				~		
S8	I	Interference Check Sample (ICS)	results					
		Were percent recoveries within meth	hod QC limits?	X				
S9	I	Serial dilutions, post digestion sp	bikes, and method of standard additions					
		Were percent differences, recoveries	s, and the linearity within the QC limits		x			4
		specified in the method?			~			
S10	01	Method detection limit (MDL) stud	lies					1
		Was a MDL study performed for eac	ch reported analyte?	X				
		Is the MDL either adjusted or suppo	rted by the analysis of DCSs?	X				
S11	0	Proficiency test reports						1
		Was the laboratory's performance a	cceptable on the applicable proficiency tests or	X				
		evaluation studies?						
S12	0	Standards documentation				1		
		Are all standards used in the analys	es NIST-traceable or obtained from other	X				
		appropriate source?						
S13	0	Compound/analyte identification	procedures			1		
		Are the procedures for compound/ar	nalyte identification documented?	⊢×_				
S14	0	Demonstration of analyst compet	ency (DOC)		-	_	1	
		Was DOC conducted consistent with	h NELAC Chapter 5?		<u> </u>		L	<u> </u>
		Is documentation of the analyst's co	mpetency up-to-date and on file?	⊢×_	L			
S15	OI	Verification/validation documenta	ation for methods (NELAC Chapter 5)		1	_		
		Are all the methods used to generate	e the data documentated, verified, and	x				
		validated, where applicable?		<u> </u>				
S16	OI	Laboratory standard operating pr	ocedures (SOPs)	- · · ·	_		-	
1	1	Are laboratory SOPs current and on	tile for each method performed?	I X	1	L	1	1



LABORATORY REVIEW CHECKLIST (continued): Exception Reports												
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	6/23/2015								
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	TC68547								
				GP32525, MP26096,								
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	MP26097								
ER# <sup>1</sup>	Descriptio	on and a second s										
	For reporting	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method										
1	blank. The	blank. The SDL is defined in the report as the MDL.										
	For reporting	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not										
2	included in the laboratory data package.											
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and											
3	methods associated with this laboratory data package for analytes that are listed in the Texas Fields of Accreditation.											
4	All anomalies are discussed in the case narrative											
5	See Metals	CCB MDL check section of report.										

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





**Section 6** 

6



Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries
- Metals CCB MDL Check



QC Batch ID: MP26096 Matrix Type: AQUEOUS Methods: SW846 6020A Units: ug/l

Prep Date:	06/15/15				
Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	25	18		
Antimony	4.0	.048	.72	-0.79	<4.0
Arsenic	4.0	.12	.54	-0.10	<4.0
Barium	2.0	.026	.19	-0.66	<2.0
Beryllium	2.0	.04	.26	-0.37	<2.0
Boron	10	.73	.78		
Cadmium	2.0	.058	.27	-0.13	<2.0
Calcium	500	24	19	-15	<500
Chromium	2.0	.062	.13	-0.065	<2.0
Cobalt	4.0	.038	.11		
Copper	4.0	.09	.11		
Iron	100	32	14		
Lead	2.0	.05	.48	-0.31	<2.0
Lithium	2.0	.7	.66		
Magnesium	500	24	14	-7.1	<500
Manganese	2.0	.052	.45		
Molybdenum	2.0	.71	.56		
Nickel	4.0	.054	.1	-0.18	<4.0
Potassium	500	27	20		
Selenium	4.0	.98	.54	0.094	<4.0
Silver	2.0	.036	.2	-0.19	<2.0
Sodium	500	24	21		
Strontium	10	.068	.25		
Thallium	2.0	.1	.1		
Tin	10	.096	.35		
Titanium	10	.58	.56		
Vanadium	2.0	.068	.43		
Zinc	4.0	.084	.82		

Associated samples MP26096: TC68547-1, TC68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(anr) Analyte not requested



QC Batch ID: MP26096 Matrix Type: AQUEOUS Methods: SW846 6020A Units: ug/l

Prep Date:				06/15/15			
Metal	TC68547-3 Original	1 MS	Spikelot MPTW11	% Rec	QC Limits		
Aluminum							
Antimony	0.0	443	400	110.8	75-125		
Arsenic	1.0	407	400	101.5	75-125		
Barium	94.9	532	400	109.3	75-125		
Beryllium	0.0	381	400	95.3	75-125		
Boron							
Cadmium	0.0	403	400	100.8	75-125		
Calcium	143000	195000	50000	104.0	75-125		
Chromium	0.36	442	400	110.4	75-125		
Cobalt							
Copper							
Iron							
Lead	2.0	395	400	98.3	75-125		
Lithium							
Magnesium	5790	60700	50000	109.8	75-125		
Manganese							
Molybdenum							
Nickel	1.4	398	400	99.2	75-125		
Potassium							
Selenium	1.1	346	400	86.2	75-125		
Silver	0.0	403	400	100.8	75-125		
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc							
Associated sam	ples MP26	096: TC68	547-1, TC	68547-2,	TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F		
Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested							



6.1.2

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QC Batch ID: MP26096 Matrix Type: AQUEOUS Methods: SW846 6020A Units: ug/l

Prep Date:					06/15/15		
Metal	TC68547- Original	1 MSD	Spikelot MPTW11	% Rec	MSD RPD	QC Limit	
Aluminum							
Antimony	0.0	458	400	114.5	3.3	20	
Arsenic	1.0	422	400	105.3	3.6	20	
Barium	94.9	552	400	114.3	3.7	20	
Beryllium	0.0	394	400	98.5	3.4	20	
Boron							
Cadmium	0.0	406	400	101.5	0.7	20	
Calcium	143000	198000	50000	110.0	1.5	20	
Chromium	0.36	449	400	112.2	1.6	20	
Cobalt							
Copper							
Iron							
Lead	2.0	400	400	99.5	1.3	20	
Lithium							
Magnesium	5790	61300	50000	111.0	1.0	20	
Manganese							
Molybdenum							
Nickel	1.4	401	400	99.9	0.8	20	
Potassium							
Selenium	1.1	360	400	89.7	4.0	20	
Silver	0.0	406	400	101.5	0.7	20	
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc							
Associated sam	ples MP26	096: TC68	547-1, TC	68547-2,	TC68547-3	, TC68547-1F, TC68547-2F, TC68547-3F	
Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested							





QC Batch ID: MP26096 Matrix Type: AQUEOUS Methods: SW846 6020A Units: ug/l

Prep Date:			06/15/15					
Metal	BSP Result	Spikelot MPTW11	% Rec	QC Limits				
Aluminum								
Antimony	433	400	108.3	80-120				
Arsenic	402	400	100.5	80-120				
Barium	436	400	109.0	80-120				
Beryllium	393	400	98.3	80-120				
Boron								
Cadmium	396	400	99.0	80-120				
Calcium	50900	50000	101.8	80-120				
Chromium	416	400	104.0	80-120				
Cobalt								
Copper								
Iron								
Lead	394	400	98.5	80-120				
Lithium								
Magnesium	52600	50000	105.2	80-120				
Manganese								
Molybdenum								
Nickel	406	400	101.5	80-120				
Potassium								
Selenium	366	400	91.5	80-120				
Silver	412	400	103.0	80-120				
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc								
Associated sam	ples MP26	096: TC68	547-1, TC	68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F				
Results < IDL a (*) Outside of (anr) Analyte a	Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested							

6.1.3

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QC Batch ID: MP26096 Matrix Type: AQUEOUS Methods: SW846 6020A Units: ug/l

Prep Date:			06/15/15				
Metal	TC68547- Original	1 SDL 2:10	%DIF	QC Limits			
Aluminum							
Antimony	0.00	0.00	NC	0-10			
Arsenic	1.02	0.00	100.0(a)	0-10			
Barium	94.9	82.3	13.3*(b)	0-10			
Beryllium	0.00	0.00	NC	0-10			
Boron							
Cadmium	0.00	0.00	NC	0-10			
Calcium	143000	131000	8.4	0-10			
Chromium	0.364	0.00	100.0(a)	0-10			
Cobalt							
Copper							
Iron							
Lead	1.97	0.420	78.6 (a)	0-10			
Lithium							
Magnesium	5790	5100	12.0*(b)	0-10			
Manganese							
Molybdenum							
Nickel	1.35	3.60	165.8(a)	0-10			
Potassium							
Selenium	1.15	0.00	100.0(a)	0-10			
Silver	0.00	0.00	NC	0-10			
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc							
Associated sam	ples MP26	096: TC68	547-1, TC	68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F			
Results < IDL (*) Outside of (anr) Analyte (a) Percent di	are shown QC limit not reque fference	as zero s sted acceptabl	for calcu e due to	lation purposes low initial sample concentration (< 50 times IDL).			



## BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: TC68547 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26097 Matrix Type: AQUEOUS Methods: SW846 7470A Units: ug/l

Prep Date:					06/15/15
Metal	RL	IDL	MDL	MB raw	final
Mercury	0.20	.05	.05	-0.045	<0.20

Associated samples MP26097: TC68547-1, TC68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

ດ



QC Batch ID: MP26097 Matrix Type: AQUEOUS Methods: SW846 7470A Units: ug/l

Prep Date:				06/15/1	06/15/15			
Metal	TC6854 Origin	7-1 al MS	Spikel HGTXAQ	ot 40 % Rec	QC Limits			
Mercury	0.0	3.1	3	103.3	75-125			

Associated samples MP26097: TC68547-1, TC68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $\ensuremath{$ 

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

6

TC68547
Login Number: TC68547 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26097 Matrix Type: AQUEOUS Methods: SW846 7470A Units: ug/l

Prep Date:						06/15/15				
Metal	TC6854 Origin	17-1 Nal MSD	Spike HGTXA	lot Q40 % Rec	MSD RPD	QC Limit				
Mercury	0.0	2.8	3	93.3	10.2	20				

Associated samples MP26097: TC68547-1, TC68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $% \left( {\left( {{{\rm{A}}} \right)_{\rm{A}}} \right)$ 

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

6



TC68547

Login Number: TC68547 Account: APEXTIXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Adrix Type: AQUEOUS					Units:	SW846 ug/l	/4/UA	
Prep Date:		0	6/15/15					
Metal	BSP Result	Spikelot HGTXAQ40 %	Rec	QC Limits				

Mercury 3.0 3 100.0 80-120

Associated samples MP26097: TC68547-1, TC68547-2, TC68547-3, TC68547-1F, TC68547-2F, TC68547-3F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested



## Metals CCB MDL Check

Job Number:	TC68547
Account:	APEXTTXD APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek

The following elements are braketed by CCB's at or above the MDL.

Sample	Element	Run ID	Time	MDL	Units	CCB Before		CCB After	
TC68547-1	Mercury	MA11098	13:59	.050	ug/l	CCB1	-0.069	CCB2	-0.063
TC68547-2	Mercury	MA11098	14:27	.050	ug/l	CCB2	-0.063	CCB3	-0.061
TC68547-3	Mercury	MA11098	14:29	.050	ug/l	CCB2	-0.063	CCB3	-0.061
TC68547-1F	Mercury	MA11098	14:30	.050	ug/l	CCB2	-0.063	CCB3	-0.061
TC68547-2F	Mercury	MA11098	14:32	.050	ug/l	CCB2	-0.063	CCB3	-0.061
TC68547-3F	Mercury	MA11098	14:34	.050	ug/l	CCB2	-0.063	CCB3	-0.061
TC68547-1	Antimony	MA11105	19:36	.36	ug/l	CCB1	-0.44	CCB2	-0.41
TC68547-2	Antimony	MA11105	20:39	.36	ug/l	CCB2	-0.41	CCB3	-0.44
TC68547-3	Antimony	MA11105	20:52	.36	ug/l	CCB2	-0.41	CCB3	-0.44
TC68547-1F	Antimony	MA11105	21:17	.36	ug/l	CCB3	-0.44	CCB4	-0.45
TC68547-2F	Antimony	MA11105	21:29	.36	ug/l	CCB3	-0.44	CCB4	-0.45
TC68547-3F	Antimony	MA11105	21:42	.36	ug/l	CCB3	-0.44	CCB4	-0.45
TC68547-1	Barium	MA11105	19:36	.093	ug/l	CCB1	-0.34	CCB2	-0.34
TC68547-2	Barium	MA11105	20:39	.093	ug/l	CCB2	-0.34	CCB3	-0.34
TC68547-3	Barium	MA11105	20:52	.093	ug/l	CCB2	-0.34	CCB3	-0.34
TC68547-1F	Barium	MA11105	21:17	.093	ug/l	CCB3	-0.34	CCB4	-0.34
TC68547-2F	Barium	MA11105	21:29	.093	ug/l	CCB3	-0.34	CCB4	-0.34
TC68547-3F	Barium	MA11105	21:42	.093	ug/l	CCB3	-0.34	CCB4	-0.34
TC68547-1	Beryllium	MA11105	19:36	.13	ug/l	CCB1	-0.18	CCB2	-0.18
TC68547-2	Beryllium	MA11105	20:39	.13	ug/l	CCB2	-0.18	CCB3	-0.18
TC68547-3	Beryllium	MA11105	20:52	.13	ug/l	CCB2	-0.18	CCB3	-0.18
TC68547-1F	Beryllium	MA11105	21:17	.13	ug/l	CCB3	-0.18	CCB4	-0.18
TC68547-2F	Beryllium	MA11105	21:29	.13	ug/l	CCB3	-0.18	CCB4	-0.18
TC68547-3F	Beryllium	MA11105	21:42	.13	ug/l	CCB3	-0.18	CCB4	-0.18
TC68547-1	Calcium	MA11105	19:36	9.3	ug/l	CCB1	-20	CCB2	-21
TC68547-2	Calcium	MA11105	20:39	9.3	ug/l	CCB2	-21	CCB3	-21
TC68547-3	Calcium	MA11105	20:52	9.3	ug/l	CCB2	-21	CCB3	-21
TC68547-1F	Calcium	MA11105	21:17	9.3	ug/l	CCB3	-21	CCB4	-22
TC68547-2F	Calcium	MA11105	21:29	9.3	ug/l	CCB3	-21	CCB4	-22
TC68547-3F	Calcium	MA11105	21:42	9.3	ug/l	CCB3	-21	CCB4	-22
TC68547-1	Nickel	MA11105	19:36	.050	ug/l	CCB1	-0.10	CCB2	-0.098
TC68547-2	Nickel	MA11105	20:39	.050	ug/l	CCB2	-0.098	CCB3	-0.10
TC68547-3	Nickel	MA11105	20:52	.050	ug/l	CCB2	-0.098	CCB3	-0.10
TC68547-1F	Nickel	MA11105	21:17	.050	ug/l	CCB3	-0.10	CCB4	-0.10
TC68547-2F	Nickel	MA11105	21:29	.050	ug/l	CCB3	-0.10	CCB4	-0.10
TC68547-3F	Nickel	MA11105	21:42	.050	ug/l	CCB3	-0.10	CCB4	-0.10



Section 7



General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- General Chemistry CCB MDL Check



#### METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

# Login Number: TC68547 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP32525/GN66488	0.50	0.0	mg/l	10	10.1	101.0	90-110%
Sulfate	GP32525/GN66488	0.50	0.0	mg/l	10	10.8	108.0	90-110%

Associated Samples: Batch GP32525: TC68547-1, TC68547-2, TC68547-3 (\*) Outside of QC limits







#### DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

# Login Number: TC68547 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP32525/GN66488	TC68707-10	mg/l	51.8	51.9	0.2	0-20%
Sulfate	GP32525/GN66488	TC68707-10	mg/l	33.6	33.5	0.3	0-20%

Associated Samples: Batch GP32525: TC68547-1, TC68547-2, TC68547-3 (\*) Outside of QC limits



#### MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

#### Login Number: TC68547 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP32525/GN66488	TC68707-10	mg/l	51.8	50	103	102.4	80-120%
Sulfate	GP32525/GN66488	TC68707-10	mg/l	33.6	50	83.4	99.6	80-120%

Associated Samples: Batch GP32525: TC68547-1, TC68547-2, TC68547-3 (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits





## General Chemistry CCB MDL Check

Job Number:	TC68547
Account:	APEXTTXD APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek

The followin	The following parameters are braketed by CCB's at or above the MDL.							
Sample	Parameter	Run ID	Time	MDL	Units	CCB Before	CCB After	

No CCB's found at or above MDL.

Calibration blank validation to the MDL is not a method requirement, but is included for information purposes only.



# **Solid Sample Analytical Results**

Accutest Laboratories Report Dated June 23, 2015

Accutest Job Number: TC68548





06/23/15

## **Technical Report for**

**APEX TITAN, Inc.** 

7020112C079 / Stewart Creek

7020112C079

Accutest Job Number: TC68548



Sampling Date: 06/08/15

**Report to:** 

APEX TITAN, Inc. 2351 W. Northwest Hwy Suite 3321 Dallas, TX 75220 JMinter@apexcos.com

**ATTN: Jason Minter** 

### Total number of pages in report: 47





Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-15-21, 1M104704220-15-2) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

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Sections:



## **Sample Summary**

#### APEX TITAN, Inc.

**Job No:** TC68548

7020112C079 / Stewart Creek Project No: 7020112C079

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
TC68548-1	06/08/15	19:18	06/10/15	SO	Solid	2015-COF-SOLID-01 0-0.25
TC68548-1A	06/08/15	19:18	06/10/15	SO	Solid	2015-COF-SOLID-01 0-0.25
TC68548-2	06/08/15	20:15	06/10/15	SO	Solid	2015-COF-SOLID-02 0-0.25
TC68548-2A	06/08/15	20:15	06/10/15	SO	Solid	2015-COF-SOLID-02 0-0.25

Soil samples reported on a dry weight basis unless otherwise indicated on result page.





## SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	APEX TITAN, Inc.	Job No	TC68548
Site:	7020112C079 / Stewart Creek	Report Date	6/22/2015 4:55:39 PM

2 Samples were collected on 06/08/2015 and received intact at Accutest on 06/10/2015 and properly preserved in 1 cooler at 0.8 Deg C. These Samples received an Accutest job number of TC68548. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Metals By Method SW846 6010B

MatrixLEACHATEBatch ID:MP26094
--------------------------------

All samples were digested within the recommended method holding time.

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68548-1AMS, TC68548-1AMSD, TC68548-1ASDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Cadmium, Chromium are outside control limits for sample MP26094-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).</p>

#### Metals By Method SW846 6020A

Matrix SO Batch ID: MP26109
-----------------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC67604-12MSD, TC67604-12MS, TC67604-12SDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Lead, Selenium are outside control limits. Spike recovery indicates possible matrix interference or sample non-homogeneity.
- Matrix Spike Duplicate Recovery(s) for Chromium, Lead, Selenium, Antimony are outside control limits. High RPD due to possible sample nonhomogeneity or matrix interference.
- Matrix Spike/Matrix Spike Duplicate Recovery(s) for Calcium, Barium, Arsenic are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- RPD(s) for MSD for Antimony, Arsenic are outside control limits for sample MP26109-S2. High RPD due to possible sample nonhomogeneity or matrix interference.
- RPD(s) for Serial Dilution for Selenium are outside control limits for sample MP26109-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).</p>
- RPD(s) for Serial Dilution for Arsenic, Beryllium, Cadmium, Chromium, Calcium, Silver are outside control limits for sample MP26109-SD1. Serial dilution indicates possible matrix interference.
- TC68548-2 for Chromium: Elevated reporting limit due to dilution required for matrix interference.
- TC68548-2 for Cadmium: Elevated reporting limit due to dilution required for matrix interference.
- TC68548-2 for Nickel: Elevated reporting limit due to dilution required for matrix interference.



#### Metals By Method SW846 7470A

atrix LEACHATE Batc
---------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68548-1AMS, TC68548-1AMSD were used as the QC samples for metals.

#### Metals By Method SW846 7471A

	Matrix	SO	Batch ID:	MP26111
--	--------	----	-----------	---------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68645-1MS, TC68645-1MSD were used as the QC samples for metals.

#### Wet Chemistry By Method EPA 300

	Matrix SO	Batch ID:	GP32496
-	All samples were prep	pared within the recommended method	holding time.
-	All samples were analy	vzed within the recommended method	holding time

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC68635-2DUP, TC68635-2MS were used as the QC samples for Sulfate.
- Matrix Spike Recovery(s) for Sulfate are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

#### Wet Chemistry By Method SM 2540 G

Matrix SO	Batch ID:	GN66305

Sample(s) TC68548-1DUP were used as the QC samples for Solids, Percent.

#### Wet Chemistry By Method SW846 9045C

Matrix	SO	Batch ID:	GN66306

- Sample(s) TC68548-1DUP were used as the QC samples for pH.
- TC68548-2 for pH: temp. 22.1 c
- TC68548-1 for pH: temp. 22.0 c

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



## **Summary of Hits**

Job Number:	TC68548
Account:	APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek
Collected:	06/08/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC68548-1	2015-COF-SOLID-01 0-0.25					
Antimony Arsenic Barium Cadmium Calcium Chromium Lead Magnesium Nickel Selenium Sulfate pH <sup>a</sup>		0.085 J 5.0 224 1.7 342000 0.54 1030 2130 2.6 0.66 J 75.2 8 70	$\begin{array}{c} 0.89\\ 0.89\\ 0.44\\ 0.44\\ 1100\\ 0.44\\ 1.8\\ 110\\ 0.89\\ 0.89\\ 4.3 \end{array}$	$\begin{array}{c} 0.032\\ 0.033\\ 0.14\\ 0.038\\ 49\\ 0.068\\ 0.25\\ 4.5\\ 0.058\\ 0.11\\ 2.2 \end{array}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	SW846 6020A SW846 6020A EPA 300 SW846 9045C
TC68548-1A	2015-COF-SOLID	-01 0-0.25			54	
Arsenic Barium Cadmium Chromium Lead Nickel		0.0074 J 0.48 J 0.0070 J 0.0049 J 0.14 0.020 J	$\begin{array}{c} 0.050 \\ 5.0 \\ 0.020 \\ 0.050 \\ 0.025 \\ 0.20 \end{array}$	$\begin{array}{c} 0.0050\\ 0.017\\ 0.00045\\ 0.0014\\ 0.0089\\ 0.0070\\ \end{array}$	mg/l mg/l mg/l mg/l mg/l	SW846 6010B SW846 6010B SW846 6010B SW846 6010B SW846 6010B SW846 6010B
TC68548-2	2015-COF-SOLID-02 0-0.25					
Antimony Arsenic Barium Cadmium <sup>b</sup> Calcium Chromium <sup>b</sup> Lead Magnesium Nickel <sup>b</sup> Selenium Sulfate pH <sup>c</sup>		0.12 J 10.1 226 0.23 J 335000 0.36 J 870 3780 2.2 1.1 311 10.03	0.93 0.93 0.47 0.93 1200 0.93 0.93 230 1.9 0.93 4.6	$\begin{array}{c} 0.034\\ 0.035\\ 0.15\\ 0.081\\ 52\\ 0.14\\ 0.13\\ 9.6\\ 0.12\\ 0.11\\ 2.3 \end{array}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg su	SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A SW846 6020A EPA 300 SW846 9045C
TC68548-2A	2015-COF-SOLID-02 0-0.25					
Barium Cadmium Lead Nickel		0.46 J 0.0011 J 0.23 0.013 J	5.0 0.020 0.025 0.20	0.017 0.00045 0.0089 0.0070	mg/l mg/l mg/l mg/l	SW846 6010B SW846 6010B SW846 6010B SW846 6010B

ω

## **Summary of Hits**

Job Number:	TC68548
Account:	APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek
Collected:	06/08/15

Lab Sample ID	Client Sample ID	Result/				
Analyte		Qual	MQL	SDL	Units	Method

(a) temp. 22.0 c(b) Elevated reporting limit due to dilution required for matrix interference.

(c) temp. 22.1 c

ω



**Section 4** 

4



Sample Results

Report of Analysis



Client Sample ID:	2015-COF-SOLID-01 0-0.25		
Lab Sample ID:	TC68548-1	Date Sampled:	06/08/15
Matrix:	SO - Solid	Date Received:	06/10/15
		Percent Solids:	57.8
Project:	7020112C079 / Stewart Creek		

## **Report of Analysis**

**Metals Analysis** 

Analyte	Result	MQL	SDL	Units	DF	Prep	Analyzed E	By	Method	Prep Method
Antimony	0.085 J	0.89	0.032	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Arsenic	5.0	0.89	0.033	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Barium	224	0.44	0.14	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Beryllium	0.024 U	0.44	0.024	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Cadmium	1.7	0.44	0.038	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Calcium	342000	1100	49	mg/kg	50	06/17/15	06/19/15 E	EG	SW846 6020A <sup>3</sup>	SW846 3050B <sup>4</sup>
Chromium	0.54	0.44	0.068	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Lead	1030	1.8	0.25	mg/kg	20	06/17/15	06/19/15 е	EG	SW846 6020A <sup>3</sup>	SW846 3050B <sup>4</sup>
Magnesium	2130	110	4.5	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Mercury	0.021 U	0.053	0.021	mg/kg	1	06/17/15	06/17/15 c	CC	SW846 7471A <sup>1</sup>	SW846 7471A <sup>5</sup>
Nickel	2.6	0.89	0.058	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Selenium	0.66 J	0.89	0.11	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Silver	0.031 U	0.44	0.031	mg/kg	5	06/17/15	06/18/15 E	EG	SW846 6020A <sup>2</sup>	SW846 3050B <sup>4</sup>

(1) Instrument QC Batch: MA11106

(2) Instrument QC Batch: MA11114

(3) Instrument QC Batch: MA11120

(4) Prep QC Batch: MP26109

(5) Prep QC Batch: MP26111

4.1 **4** 

U = Indicates a result < SDL



Accutest Laboratories

Client Sample ID:	2015-COF-SOLID-01 0-0.25			
Lab Sample ID:	TC68548-1	Date Sampled:	06/08/15	
Matrix:	SO - Solid	Date Received:	06/10/15	
		Percent Solids:	57.8	
Project:	7020112C079 / Stewart Creek			
General Chemistry				

## **Report of Analysis**

Analyte	Result	MQL	SDL	Units	DF	Analyzed	By	Method
Solids, Percent	57.8			%	1	06/12/15	PA	SM 2540 G
Sulfate	75.2	4.3	2.2	mg/kg	1	06/17/15 12:16	ES	EPA 300
pH <sup>a</sup>	8.70			su	1	06/12/15 16:15	MS	SW846 9045C

(a) temp. 22.0 c





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## **Report of Analysis**

Client Sample ID:	2015-COF-SOLID-01 0-0.25		
Lab Sample ID:	TC68548-1A	Date Sampled:	06/08/15
Matrix:	SO - Solid	Date Received:	06/10/15
		Percent Solids:	57.8
Project:	7020112C079 / Stewart Creek		

#### Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	MQL	SDL	Units	DF	Prep	Analyzed By	Method
Antimony	0.0051 U			0.025	0.0051	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Arsenic	0.0074 J	D004	5.0	0.050	0.0050	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Barium	0.48 J	D005	100	5.0	0.017	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Beryllium	0.00080 U			0.025	0.00080	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Cadmium	0.0070 J	D006	1.0	0.020	0.00045	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Chromium	0.0049 J	D007	5.0	0.050	0.0014	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Lead	0.14	D008	5.0	0.025	0.0089	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Mercury	0.000050 U	D009	0.20	0.00020	0.000050	0mg/1	1	06/15/15	06/15/15 CC	SW846 7470A <sup>1</sup>
Nickel	0.020 J			0.20	0.0070	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Selenium	0.0049 U	D010	1.0	0.050	0.0049	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Silver	0.0012 U	D011	5.0	0.050	0.0012	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11100

(3) Prep QC Batch: MP26094

(4) Prep QC Batch: MP26101



Page 1 of 1

Client Sample Lab Sample II Matrix:	ID: 2 D: T S	015-C C6854 O - So	OF-SOL 48-2 olid	ID-02 0-0	.25			Date Date Borg	e Samp e Recei	led: ved:	06/08/15 06/10/15	
Project:	7	02011	2C079 /	Stewart C	reek			Perc	ent So	nus:	J4. /	
Metals Analys	is											,
Analyte	Resu	lt	MQL	SDL	Units	DF	Prep	Analyzed	By	Meth	od	Prep Method
Antimony	0.12	J	0.93	0.034	mg/kg	5	06/17/15	06/18/15	EG	SW846	6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Arsenic	10.1		0.93	0.035	mg/kg	5	06/17/15	06/18/15	EG	SW846	6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Barium	226		0.47	0.15	mg/kg	5	06/17/15	06/18/15	EG	SW846	6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Beryllium	0.025	U	0.47	0.025	mg/kg	5	06/17/15	06/18/15	EG	SW846	6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Cadmium <sup>a</sup>	0.23	J	0.93	0.081	mg/kg	10	06/17/15	06/18/15	EG	SW846	6020A <sup>2</sup>	SW846 3050B <sup>4</sup>
Calcium	33500	00	1200	52	mg/kg	50	06/17/15	06/19/15	EG	SW846	6020A <sup>3</sup>	SW846 3050B <sup>4</sup>

06/17/15 06/18/15 EG

06/17/15 06/18/15 EG

06/17/15 06/18/15 EG

06/17/15 06/17/15 CC

06/17/15 06/18/15 EG

06/17/15 06/18/15 EG

06/17/15 06/18/15 EG

mg/kg 10

mg/kg 10

mg/kg 10

mg/kg 1

mg/kg 10

mg/kg 5

mg/kg 5

## **Report of Analysis**

(1) Instrument QC Batch: MA11106

0.36 J

870

3780

2.2

1.1

0.021 U

0.033 U

0.93

0.93

230

1.9

0.93

0.47

0.054

0.14

0.13

9.6

0.021

0.12

0.11

0.033

(2) Instrument QC Batch: MA11114

(3) Instrument QC Batch: MA11120

(4) Prep QC Batch: MP26109

Chromium a

Magnesium

Mercury

Nickel<sup>a</sup>

Selenium

Silver

Lead

(5) Prep QC Batch: MP26111

(a) Elevated reporting limit due to dilution required for matrix interference.

SW846 6020A<sup>2</sup>

SW846 6020A<sup>2</sup>

SW846 6020A<sup>2</sup>

SW846 7471A<sup>1</sup>

SW846 6020A<sup>2</sup>

SW846 6020A<sup>2</sup>

SW846 6020A<sup>2</sup>



Page 1 of 1

SW846 3050B<sup>4</sup>

SW846 3050B <sup>4</sup>

SW846 3050B 4

SW846 7471A <sup>5</sup>

SW846 3050B 4

SW846 3050B 4

SW846 3050B 4



Accutest Laboratories

Client Sample ID:	2015-COF-SOLID-02 0-0.25		
Lab Sample ID:	TC68548-2	Date Sampled:	06/08/15
Matrix:	SO - Solid	Date Received:	06/10/15
		Percent Solids:	54.7
Project:	7020112C079 / Stewart Creek		
General Chemistry			

Analyte	Result	MQL	SDL	Units	DF	Analyzed	By	Method
Solids, Percent	54.7			%	1	06/12/15	PA	SM 2540 G
Sulfate	311	4.6	2.3	mg/kg	1	06/17/15 12:33	ES	EPA 300
pH <sup>a</sup>	10.03			su	1	06/12/15 16:15	MS	SW846 9045C

(a) temp. 22.1 c

Page 1 of 1



## **Report of Analysis**

Client Sample ID:	2015-COF-SOLID-02 0-0.25		
Lab Sample ID:	TC68548-2A	Date Sampled:	06/08/15
Matrix:	SO - Solid	Date Received:	06/10/15
		Percent Solids:	54.7
Project:	7020112C079 / Stewart Creek		

#### Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	MQL	SDL	Units	DF	Prep	Analyzed By	Method
Antimony	0.0051 U			0.025	0.0051	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Arsenic	0.0050 U	D004	5.0	0.050	0.0050	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Barium	0.46 J	D005	100	5.0	0.017	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Beryllium	0.00080 U			0.025	0.00080	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Cadmium	0.0011 J	D006	1.0	0.020	0.00045	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Chromium	0.0014 U	D007	5.0	0.050	0.0014	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Lead	0.23	D008	5.0	0.025	0.0089	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Mercury	0.000050 U	D009	0.20	0.00020	0.000050	0mg/1	1	06/15/15	06/15/15 CC	SW846 7470A <sup>1</sup>
Nickel	0.013 J			0.20	0.0070	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Selenium	0.0049 U	D010	1.0	0.050	0.0049	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B <sup>2</sup>
Silver	0.0012 U	D011	5.0	0.050	0.0012	mg/l	5	06/15/15	06/15/15 NS	SW846 6010B 2

(1) Instrument QC Batch: MA11098

(2) Instrument QC Batch: MA11100

(3) Prep QC Batch: MP26094

(4) Prep QC Batch: MP26101



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**Section 5** 

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



																			6	5		71	U	28	54	8	
																		Tr.	y K	•		CHA	IN OF	F CL	JSTO	Y REC	COR
A	PEX	,				Labo Addre	ratory: ess:	Ace	vte	5E					An, Re	ALYS QUE	SIS STED	20-546 # 13/11	FIT Mark	2					Lab use Due Date	only e: oolers ived (C°):	
Unic	e Localic	11				Conta	act:										×7.	jo j	, ,	' /		11		1	2	3 4	5
	Dall	0us				Phon	e: H?	5-2	71-1	t70	0						i. Er	Å			/			F	age	∖_of	
Proje	ect Mana	ger <u>25</u>	imp	50	<u>^</u>	PO/S	O#:									-	J.F.	K	/	/		'/	/				
Samp	ler's Name					Sample	r's Signa	ature								1	13.	1	/ ,	/ /	' /		/				
pass	mmo	iter			$\leq$	Dog.	Ð	<u>S</u>	~							Ý	₹↓	₹ /	_/			/ /					
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+04	nu	149	0	G				тę	ъf	A	04	Q _	<u>د</u> ۲	0		1	A H	. /	/	/ ,							
Matrix	Date	Time	m p	a b	Identifying Ma	rks of Sa	mple(s)	Sta Dep	Dep	Ş	87	5 <sup>2</sup> E	Gla: Ja	<u>d</u>	Ă	4	N.	[]		/			La	ab Sam	ple ID (La	ab Use On	.ly)
5	6-8-15	19.14		x	2015-605	2-502	10-01	0	6.25					1	8	¥	7										
16	6-515	2015		X	2015-005	-5013	D-02	D	0.25					١	q	q	6										
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		a.X	6-7	5																							
	JE I	Ŵ.								-																	
Turn a	around time	Ø Noi	rmal	02	5% Rush	3 50% R	ish 🗆	100%	Rush			l	L1							l							
Belin	quished by	(Signature)	)	6	Date:	Time:	Receiv Feo	ed by:	(Signa	ture)		4	Date	5	TI IG	ime: LO	NOT FO	ES:	<u>v</u> .	l. r	7~		201	110			
Relif	erished by	(Signature)	)	L	Dater 11015 DG	Time: 100	Reseiv BLC	ed by:	i Signa	ture) MU	1	L	Date { / 10 /	15	09	ime: 0 Ù	10	ne.	-	121	70	101	m 0	e O	7		
Relin	quished by	(Signature)	)		Date:	Time:	Receiv	ed by:	(Signa	ture)/	/		Date	:	Т	ime:											
Relin	quished by	(Signature)	)		Date:	Time:	Receiv	ed by	(Signa	ture)			Date	:	Ti	ime:											
Matrix	w inor VC	N - Wastewa	ater		W - Water	S - Soil	SD - Sol	lid	L - Liqui	d A	- Air Ba	ag Nuth	C ·	Cha	rcoal ti	ube	SL - s	ludge		D - Oil							

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TC68548: Chain of Custody Page 1 of 3



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## Accutest Laboratories Sample Receipt Summary

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Accutest Job Number:		TC68548	Client:	APEX	Project:	SEAWORTCREEK		
Date / Time Received:		6/10/2015		Delivery Method:	Airbill #'s:	617012796104		
No. Coolers:	1	Therm ID:	IR-5;		Temp Adjus	tment Factor: 0;		
0 I <b>T</b>	/	H	0.01.					

Cooler Temps (Initial/Adjusted): #1: (0.8/0.8);

Cooler Security f	or N			Yo	or N	Sample Integrity - Documentation	Y	or	Ν	
1. Custody Seals Present:       Image: Custody Seals Intact:         2. Custody Seals Intact:       Image: Custody Seals Intact:		] 3. ] 4. Sn	COC Present: npl Dates/Time OK	<ul><li>✓</li></ul>		<ol> <li>Sample labels present on bottles:</li> <li>Container labeling complete:</li> </ol>	<ul><li>✓</li></ul>			
Cooler Temperature	Y	or N				3. Sample container label / COC agree:	$\checkmark$			
1. Temp criteria achieved:	✓					Sample Integrity - Condition	Y	or	N	
2. Cooler temp verification:						1. Sample recvd within HT:	$\checkmark$			
3. Cooler media:	I	ce (Bag)				2. All containers accounted for:	$\checkmark$			
Quality Control Preservation	Y	or N	N/A	WTB	STB	3. Condition of sample:		Intact	1	
1. Trip Blank present / cooler:			$\checkmark$			Sample Integrity - Instructions	Y	or	N	N/A
2. Trip Blank listed on COC:			$\checkmark$			1. Analysis requested is clear:	$\checkmark$			
						2 Bottles received for unspecified tests				
<ol><li>Samples preserved properly:</li></ol>	$\checkmark$					2. Dottios received for unopcomed toolo			Ľ.	
<ol> <li>Samples preserved properly:</li> <li>VOCs headspace free:</li> </ol>						3. Sufficient volume recvd for analysis:				
<ol> <li>Samples preserved properly:</li> <li>VOCs headspace free:</li> </ol>			V			<ol> <li>Sufficient volume recvd for analysis:</li> <li>Compositing instructions clear:</li> </ol>				
<ol> <li>Samples preserved properly:</li> <li>VOCs headspace free:</li> </ol>						<ol> <li>Sufficient volume recvd for analysis:</li> <li>Compositing instructions clear:</li> <li>Filtering instructions clear:</li> </ol>				V

Accutest Laboratories V:713.271.4700 10165 Harwin Drive F: 713.271.4770 Houston, TX 77036 www/accutest.com

TC68548: Chain of Custody Page 2 of 3





#### Sample Receipt Log

Page 2 of 2

Job #: TC68548

Date / Time Received: 6/10/2015 9:00:00 AM

Initials: BH

Client: APEX

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	Pres pH Ther		Initial Temp	Therm CF	Corrected Temp
1	TC68548-1	4oz	1	2-18	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8
1	TC68548-2	4oz	1	2-18	N/P	Note #2 - Preservative check not applicable.	IR-5	0.8	0	0.8

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TC68548: Chain of Custody Page 3 of 3



#### Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review sheeklist, and the following reportable date

TC68548 This data package consists of

-	11113 315	lature page, the laboratory review encentist, and the following reportable data.							
Ū.	R1	Field chain-of-custody docume	ntation;						
Ū.	R2	Sample identification cross-refe	Sample identification cross-reference;						
	R3	Test reports (analytical data she	eets) for each environmental sample that includes:						
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10						
		b)	dilution factors,						
		c)	preparation methods,						
		d)	cleanup methods, and						
		e)	if required for the project, tentatively identified compounds (TICs).						
	R4	Surrogate recovery data includi	ng:						
		a)	Calculated recovery (%R), and						
		b)	The laboratory's surrogate QC limits.						
Ū.	R5	Test reports/summary forms for	r blank samples;						
Ū.	R6	Test reports/summary forms for	r laboratory control samples (LCSs) including:						
		a)	LCS spiking amounts,						
		b)	Calculated %R for each analyte, and						
		c)	The laboratory's LCS QC limits.						
	R7	Test reports for project matrix s	pike/matrix spike duplicates (MS/MSDs) including:						
		a)	Samples associated with the MS/MSD clearly identified,						
		b)	MS/MSD spiking amounts,						
		c)	Concentration of each MS/MSD analyte measured in the parent and						
		d)	Calculated %Rs and relative percent differences (RPDs), and						
		e)	The laboratory's MS/MSD QC limits						
Ģ	R8	Laboratory analytical duplicate	(if applicable) recovery and precision:						
		a)	The amount of analyte measured in the duplicate,						
		b)	The calculated RPD, and						
		c)	The laboratory's QC limits for analytical duplicates.						
Ģ	R9	List of method quantitation limit	s (MQLs) and detectability check sample results for each analyte for each						
	R10	Other problems or anomalies.							

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Report. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld.

Check, if applicable: This laboratory meets an exception under 30 TAC&25.6 and was last inspection by

[X] TCEQ or [] \_\_\_\_\_\_ on April 2011. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

QA Manager

[]

Name (Printed)

Signature

Official Title (printed)

Laboratory Director

Date 6/22/2015

Richard Rodriguez

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	LABORATORY REVIEW CHECKLIST: REPORTABLE DATA								
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	6/2	2/20	15			
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	тс	6854	18			
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GN66305, GN66306, GP32496, MP26094, MP26101, MP26109, MP26111					
# <sup>1</sup>	A <sup>2</sup>	DESCRIPTION		YES	NO	NA <sup>3</sup>	NR <sup>4</sup>	ER # <sup>5</sup>	
R1	OI	CHAIN-OF-CUSTODY (C-O-C):							
		Did samples meet the laboratory's sta upon receipt?	andard conditions of sample acceptability	x					
		Were all departures from standard co	onditions described in an exception report?	X					
R2	OI	Sample and quality control (QC) id	entification						
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	X					
		Are all laboratory ID numbers cross-r	X						
R3	0	Test reports							
	•.	Were samples prepared and analyze	X	<u> </u>					
		Other than those results <mql th="" were<=""><th>all other raw values bracketed by calibration</th><th></th><th></th><th></th><th></th><th></th></mql>	all other raw values bracketed by calibration						
		standards?		X					
		Were calculations checked by a peer	or supervisor?	X					
		Were all analyte identifications check	ed by a peer or supervisor?	X					
		Were sample detection limits reported	d for all analytes not detected?	X					
		Were all results for soil and sediment	t samples reported on a dry weight basis?	X					
		Were % moisture (or solids) reported	for all soil and sediment samples?	X					
		Were bulk soils/solids samples for vo	platile analysis extracted with methanol per						
		SW846 Method 5035?				X			
		If required for the project, are TIC's re			Х				
R4	0	Surrogate recovery data							
		Were surrogates added prior to extra			Х				
		Were surrogate percent recoveries in	all samples within the laboratory QC limits?			Х			
R5	OI	Test reports/summary forms for bl	ank samples						
		Were appropriate type(s) of blanks an	nalyzed?	Х					
		Were blanks analyzed at the appropr	iate frequency?	Х					
		Were method blanks taken through the	he entire analytical process, including	x					
		preparation and, if applicable, cleanu	p procedures?	^					
		Were blank concentrations <mql?< th=""><th></th><th>Х</th><th></th><th></th><th></th><th></th></mql?<>		Х					
R6	01	Laboratory control samples (LCS):							
		Were all COCs included in the LCS?							
		cleanup steps?	tire analytical procedure, including prep and	х					
		Were LCSs analyzed at required free	luency?	X					
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	X					
		Does the detectablility check sample	data document the laboratory's capability to	X					
		detect the COCs at the MDL used to	calculate the SDLs?			X			
	0	was the LCSD RPD within QC limits				~			
<u> </u>	01	Ware the project/method epositied or	auplicate (MSD) data		1				
		Were the project/method specified an	naryles included in the MS and MSD?						
		Were MS/MSD analyzed at the applic	Pawithin the laboratory OC Limite?	<u> </u>				4	
		Were the MS/MSD RPDs within Jaho	ratory OC limite?		÷			4	
D8	0	Analytical duplicate data						4	
N0	0	Analytical duplicate data	a analyzed for each matrix?		1				
		Were appropriate analytical duplicates	at the appropriate frequency?	$+\hat{\mathbf{v}}$					
		Were RPDs or relative standard devi	at the appropriate frequency?	+÷					
Pa	0	Method quantitation limits (MOLs)		+					
		Are the MOLs for each method analy	te included in the laboratory data package?	X					
		Do the MQL's correspond to the conc	entration of the lowest non-zero calibration	$+\hat{\mathbf{x}}$					
		Are unadjusted MOLs and DCSs incl	uded in the laboratory data package?	$+\hat{-}$	x			2	
R10	0	Other problems/anomalies						-	
		Are all known problems/anomalies/sr	pecial conditions noted in this LRC and FR?	X					
		Was applicable and available techno	logy used to lower the SDL to minimize the	X					
		Is the laboratory NFLAC-accredited	Inder the Texas Laboratory Accreditation	† <sup>^</sup>					
		Program for the analytes matrices a	nd methods associated with this laboratory	x				3	
		data package?						-	



Laboratory Name: Accutest Gulf Coast LRC Date:				6/22/2015					
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	TC68548					
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GN66305, GN66306, GP32496, MP26094, MP26101, MP26109, MP26111					
# <sup>1</sup>	A <sup>2</sup>	DESCRIPTION		YES	NO	NA <sup>3</sup>	NR⁴	ER # <sup>5</sup>	
S1	OI	Initial calibration (ICAL)							
		Were response factors and/or relative limits? Were percent RSDs or correlation co	e response factors for each analyte within QC	X					
		Was the number of standards recom	mended in the method used for all analytes?	X					
		Were all points generated between th							
		calculate the curve?	X						
		Are ICAL data available for all instrum	Y						
		Has the initial calibration curve been							
		standard?	venned using an appropriate second source	X					
S2	0	Initial and continuing calibration v							
		Was the CCV analyzed at the metho	Х		-				
		Were percent differences for each an	X						
		Was the ICAL curve verified for each	X						
		Was the absolute value of the analyte	a concentration in the inorganic CCB <mdl2< th=""><th></th><th>x</th><th></th><th></th><th>5</th></mdl2<>		x			5	
62	0	Mass spectral tuning							
	- U	Was the appropriate compound for the			Y				
		Was the appropriate compound for the			X				
- 64	0	Internal standards (IS)			~				
- 34	0	Were IS area counts and retention tir	nes within the method-required OC limits?			Y			
\$5	0	Paw data (NELAC Section 5.5.10)							
	01	Were the raw data (for example, chro		-		-			
		analyst?	X						
		Were data associated with manual in	tegrations flagged on the raw data?						
	0	Dual column confirmation	legrations hagged on the law data:						
	0	Did dual column confirmation results	meet the method-required OC2			Y			
\$7	0	Tentatively identified compounds				~			
	- U	If TICs were requested, were the mas	s spectra and TIC data subject to appropriate						
		checks?				Х			
58	1	Interference Check Sample (ICS) r	esulte						
		Were percent recoveries within meth	od QC limits?	X					
59	1	Serial dilutions post digestion spi	kes and method of standard additions						
		Were percent differences, recoveries	and the linearity within the QC limits						
		specified in the method?			Х			4	
S10	0	Method detection limit (MDL) stud	ies						
		Was a MDL study performed for eac	n reported analyte?	Х					
		Is the MDL either adjusted or suppor	ted by the analysis of DCSs?	X					
S11	0	Proficiency test reports							
	-	Was the laboratory's performance ac	ceptable on the applicable proficiency tests or						
		evaluation studies?		X					
S12	01	Standards documentation							
		Are all standards used in the analyse	s NIST-traceable or obtained from other	v					
		appropriate source?		X					
S13	OI	Compound/analyte identification p	rocedures						
		Are the procedures for compound/an	alyte identification documented?	Х					
S14	OI	Demonstration of analyst compete	ency (DOC)						
		Was DOC conducted consistent with	NELAC Chapter 5?	Х					
		Is documentation of the analyst's con	npetency up-to-date and on file?	Х					
S15	OI	Verification/validation documentat	tion for methods (NELAC Chapter 5)						
		Are all the methods used to generate	the data documentated, verified, and	v					
		validated, where applicable?		^					
S16	OI	Laboratory standard operating pro	ocedures (SOPs)						
		Are laboratory SOPs current and on t	file for each method performed?	Х					



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports								
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	6/22/2015					
Project Na	me:	7020112C079 / Stewart Creek	Laboratory Project Number:	TC68548					
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GN66305, GN66306, GP32496, MP26094, MP26101, MP26109, MP26111					
ER# <sup>1</sup>	Descriptio	on and a second s	• •	•					
1	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method blank. The SDL is defined in the report as the MDL.								
2	For reporting included in	ng purposes, the method blank repres the laboratory data package.	sents the unadjusted MQL. The DCS is on file	e in the laboratory and is not					
3	The labora methods a	tory is NELAC-accredited under the T ssociated with this laboratory data page	exas Laboratory Accreditation Program for the case of	e analytes, matrices, and Fields of Accreditation.					
4	All anomal	ies are discussed in the case narrative	е.						
5	See Metals	CCB MDL check section of report.							

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



**Section 6** 

6



Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries
- Metals CCB MDL Check



#### Login Number: TC68548 Account: APEXTIXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26094 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:					06/15/15		06/15/15
Metal	RL	IDL	MDL	MB raw	final	MB raw	final
Aluminum	1.0	.041	.061				
Antimony	0.025	.005	.0051	-0.0096	<0.025	-0.0090	<0.025
Arsenic	0.050	.0085	.005	-0.00045	<0.050	-0.00065	<0.050
Barium	5.0	.0049	.017	0.0015	<5.0	-0.00047	<5.0
Beryllium	0.025	.00028	.0008	-0.00038	<0.025	-0.00079	<0.025
Boron	0.50	.007	.039				
Cadmium	0.020	.00055	.00045	-0.00085	<0.020	-0.00058	<0.020
Calcium	25	.037	.12				
Chromium	0.050	.0012	.0014	-0.00036	<0.050	-0.0021	<0.050
Cobalt	0.25	.00075	.0011				
Copper	0.13	.0056	.03				
Iron	0.50	.0057	.12				
Lead	0.025	.005	.0089	-0.0022	<0.025	0.00097	<0.025
Lithium	1.5	.01	.01				
Magnesium	25	.038	.04				
Manganese	0.075	.00027	.0093				
Molybdenum	0.050	.002	.001				
Nickel	0.20	.0035	.007	0.0029	<0.20	0.0	<0.20
Potassium	25	.2	.22				
Selenium	0.050	.0077	.0049	-0.0089	<0.050	-0.015	<0.050
Silver	0.050	.0058	.0012	0.00099	<0.050	-0.00036	<0.050
Sodium	25	.046	.52				
Strontium	0.050	.00031	.002				
Thallium	0.050	.0034	.0058				
Tin	0.10	.0035	.014				
Titanium	0.10	.0015	.0015				
Vanadium	0.25	.0015	.0015				
Zinc	0.50	.0026	.017				

Associated samples MP26094: TC68548-1A, TC68548-2A

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

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#### Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26094 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:				06/15/15	
Metal	TC68548 Origina	-1A 1 MS	Spikelot MPTW11	* Rec	QC Limits
Aluminum					
Antimony	0.0	0.42	0.40	105.0	75-125
Arsenic	0.0	0.44	0.40	110.0	75-125
Barium	0.48	0.85	0.40	92.5	75-125
Beryllium	0.0	0.42	0.40	105.0	75-125
Boron					
Cadmium	0.0070	0.43	0.40	105.8	75-125
Calcium					
Chromium	0.0049	0.41	0.40	101.3	75-125
Cobalt					
Copper					
Iron					
Lead	0.14	0.51	0.40	92.5	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	0.020	0.40	0.40	95.0	75-125
Potassium					
Selenium	0.0	0.43	0.40	107.5	75-125
Silver	0.0	0.41	0.40	102.5	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					
Associated sar	mples MP2	5094: TC68	8548-1A, 1	C68548-2A	
Results < IDL (*) Outside of (N) Matrix Sp: (anr) Analyte	are shown E QC limit ike Rec. o not reque	n as zero ts outside of ested	for calcu E QC limit	ulation pu	irposes



#### Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26094 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:					06/15/15	
Metal	TC68548 Origina	-1A 1 MSD	Spikelot MPTW11	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	0.0	0.42	0.40	105.0	0.0	20
Arsenic	0.0	0.44	0.40	110.0	0.0	20
Barium	0.48	0.86	0.40	95.0	1.2	20
Beryllium	0.0	0.42	0.40	105.0	0.0	20
Boron						
Cadmium	0.0070	0.43	0.40	105.8	0.0	20
Calcium						
Chromium	0.0049	0.41	0.40	101.3	0.0	20
Cobalt						
Copper						
Iron						
Lead	0.14	0.52	0.40	95.0	1.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	0.020	0.40	0.40	95.0	0.0	20
Potassium						
Selenium	0.0	0.43	0.40	107.5	0.0	20
Silver	0.0	0.41	0.40	102.5	0.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						
Associated s	amples MP2	6094: TC	68548-1A, I	268548-22	4	
Results < ID (*) Outside (N) Matrix S (anr) Analyt	L are show of QC limi pike Rec. e not requ	n as zer ts outside ested	o for calcu of QC limit	lation pu	urposes	



#### Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26094 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:			06/15/15	
Metal	BSP Result	Spikelot MPTW11	% Rec	QC Limits
Aluminum				
Antimony	0.40	0.40	100.0	80-120
Arsenic	0.42	0.40	105.0	80-120
Barium	0.41	0.40	102.5	80-120
Beryllium	0.43	0.40	107.5	80-120
Boron				
Cadmium	0.41	0.40	102.5	80-120
Calcium				
Chromium	0.41	0.40	102.5	80-120
Cobalt				
Copper				
Iron				
Lead	0.37	0.40	92.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	0.38	0.40	95.0	80-120
Potassium				
Selenium	0.43	0.40	107.5	80-120
Silver	0.41	0.40	102.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				
Associated sa	amples MP2	6094: TC68	548-1A, T	C68548-2A
Results < IDI	are shown	n as zero	for calcu	lation purposes

(\*) Outside of QC limits (anr) Analyte not requested


QC Batch ID: MP26094 Matrix Type: LEACHATE Methods: SW846 6010B Units: ug/l

Prep Date:			06/15/15			
Metal	TC68548-: Original	la SDL 5:25	%DIF	QC Limits		
Aluminum						
Antimony	0.00	0.00	NC	0-10		
Arsenic	0.00	0.00	NC	0-10		
Barium	479	467	2.5	0-10		
Beryllium	0.00	0.00	NC	0-10		
Boron						
Cadmium	7.01	0.00	100.0(a)	0-10		
Calcium						
Chromium	4.86	0.00	100.0(a)	0-10		
Cobalt						
Copper						
Iron						
Lead	136	123	9.5	0-10		
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	20.5	20.6	0.6	0-10		
Potassium						
Selenium	0.00	0.00	NC	0-10		
Silver	0.00	0.00	NC	0-10		
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						
Associated sam	ples MP26	094: TC68	548-1A, T	C68548-2A		
Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested						

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).



#### BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: TC68548 Account: APEXTIXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26101 Matrix Type: LEACHATE Methods: SW846 7470A Units: mg/l

Prep	Date:		06/15/15
		MB	

 Metal
 RL
 IDL
 MDL
 raw
 final

 Mercury
 0.00020
 .00005
 .00005
 -0.000045<0.00020</td>

Associated samples MP26101: TC68548-1A, TC68548-2A

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

6



QC Batch ID: MP26101 Matrix Type: LEACHATE Methods: SW846 7470A Units: mg/l

Prep Date:

06/15/15

Associated samples MP26101: TC68548-1A, TC68548-2A

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $% \left( {\left( {{{\rm{A}}} \right)_{\rm{A}}} \right)$ (N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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30 of 47

TC68548

QC Batch ID: MP26101 Matrix Type: LEACHATE Methods: SW846 7470A Units: mg/l

Prep Date:

06/15/15

Associated samples MP26101: TC68548-1A, TC68548-2A

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

6



QC Batch ID: MP26101 Matrix Type: LEACHATE Methods: SW846 7470A Units: mg/l

Prep Date: Metal			06/15/1	.5
	BSP Result	Spikelo HGTXAQ4	t 0 % Rec	QC Limits
Mercury	0.0031	0.0030	103.3	80-120

Associated samples MP26101: TC68548-1A, TC68548-2A

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested



QC Batch ID: MP26109 Matrix Type: SOLID Methods: SW846 6020A Units: mg/kg

Prep Date:	06/17/15				
Metal	RL	IDL	MDL	MB raw	final
Aluminum	13	3.1	.83		
Antimony	0.50	.006	.018	-0.087	<0.50
Arsenic	0.50	.015	.019	-0.068	<0.50
Barium	0.25	.0033	.081	-0.051	<0.25
Beryllium	0.25	.005	.013	-0.068	<0.25
Boron	1.3	.091	.7		
Cadmium	0.25	.0073	.022	-0.060	<0.25
Calcium	63	3.1	2.8	-1.6	<63
Chromium	0.25	.0078	.038	-0.059	<0.25
Cobalt	0.50	.0048	.018		
Copper	0.50	.011	.057		
Iron	13	4	.99		
Lithium	0.25	.088			
Lead	0.25	.0063	.035	-0.031	<0.25
Magnesium	63	3	2.6	-0.52	<63
Manganese	0.25	.0065	.12		
Molybdenum	0.25	.088	.09		
Nickel	0.50	.0068	.033	0.024	<0.50
Potassium	63	3.3	1.2		
Selenium	0.50	.12	.061	-0.0088	<0.50
Silver	0.25	.0045	.017	-0.017	<0.25
Sodium	63	3	2.9		
Strontium	1.3	.0085	.015		
Thallium	0.25	.013	.024		
Tin	1.3	.012	.09		
Titanium	1.3	.073	.052		
Vanadium	0.25	.0085	.045		
Zinc	0.50	.011	.15		

Associated samples MP26109: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

QC Batch ID: MP26109 Matrix Type: SOLID

Methods: SW846 6020A Units: mg/kg

Prep Date:				06/17/15		
Metal	TC67604-: Original	12 MS	Spikelot MPTW11	% Rec	QC Limits	
Antimony	14.6	33.4	24.2	77.8	75-125	
Arsenic	158	241	24.2	343.3(a)	75-125	
Barium	250	202	24.2	-198.5(a	75-125	
Beryllium	0.49	21.4	24.2	86.5	75-125	
Cadmium	0.82	25.0	24.2	100.0	75-125	
Calcium	61700	69700	3020	264.7(a)	75-125	
Chromium	37.0	61.1	24.2	99.7	75-125	
Lead	24.7	64.0	24.2	162.5N(b	75-125	
Magnesium	2460	5390	3020	96.9	75-125	
Nickel	10.2	36.3	24.2	107.9	75-125	
Selenium	0.50	16.6	24.2	66.6N(b)	75-125	
Silver	0.72	25.4	24.2	102.1	75-125	

Associated samples MP26109: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

(b) Spike recovery indicates possible matrix interference or sample non-homogeneity.





QC Batch ID: MP26109 Matrix Type: SOLID Methods: SW846 6020A Units: mg/kg

Prep Date:					06/17/15		
Metal	TC67604-12 Original MSD		Spikelot MPTWll % Rec		MSD RPD	QC Limit	
Antimony	14.6	26.6	24.2	49.6N(a)	22.7 (b)	20	
Arsenic	158	144	24.2	-57.9(c)	50.4 (b)	20	
Barium	250	180	24.2	-289.5(c	11.5	20	
Beryllium	0.49	20.0	24.2	80.7	6.8	20	
Cadmium	0.82	23.5	24.2	93.8	6.2	20	
Calcium	61700	68000	3020	208.4(c)	2.5	20	
Chromium	37.0	50.9	24.2	57.5N(a)	18.2	20	
Lead	24.7	62.8	24.2	157.6N(a	1.9	20	
Magnesium	2460	4990	3020	83.7	7.7	20	
Nickel	10.2	34.5	24.2	100.5	5.1	20	
Selenium	0.50	16.1	24.2	64.5N(a)	3.1	20	
Silver	0.72	24.0	24.2	96.3	5.7	20	

Associated samples MP26109: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference or sample non-homogeneity.

(b) High RPD due to possible sample nonhomogeneity or matrix interference.

(c) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.





QC Batch ID: MP26109 Matrix Type: SOLID Methods: SW846 6020A Units: mg/kg

Prep Date:			06/17/15		
Metal	LCS Result	Spikelot MPLCD068	% Rec	QC Limits	
Aluminum					
Antimony	80.2	94	85.3	0-214	
Arsenic	110	113	97.3	78-122	
Barium	169	155	109.0	82-117	
Beryllium	105	109	96.3	83-117	
Boron					
Cadmium	70.1	67.5	103.9	82-118	
Calcium	5920	5850	101.2	81-119	
Chromium	172	164	104.9	79-121	
Cobalt					
Copper					
Iron					
Lithium					
Lead	91.4	90.1	101.4	82-119	
Magnesium	3070	2790	110.0	76-125	
Manganese					
Molybdenum					
Nickel	88.2	89.3	98.8	82-118	
Potassium					
Selenium	141	156	90.4	78-122	
Silver	53.7	52.6	102.1	75-125	
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					
Associated sa	amples MP2	6109: TC68	548-1, TC	68548-2	
Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested					

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QC Batch ID: MP26109 Matrix Type: SOLID

Methods: SW846 6020A Units: ug/l

Prep Date:			06/17/15			
Metal	TC67604- Original	12 SDL 5:25	%DIF	QC Limits		
Antimony	239	243	1.7	0-10		
Arsenic	2590	3440	32.9*(a)	0-10		
Barium	4090	4110	0.5	0-10		
Beryllium	8.01	3.65	54.5*(a)	0-10		
Cadmium	13.4	9.66	28.2*(a)	0-10		
Calcium	1010000	1170000	15.5*(a)	0-10		
Chromium	607	685	12.9*(a)	0-10		
Lead	405	431	6.6	0-10		
Magnesium	40400	44100	9.2	0-10		
Nickel	168	180	7.2	0-10		
Selenium	8.24	13.0	57.4 (b)	0-10		
Silver	11.8	9.45	19.6*(a)	0-10		

Associated samples MP26109: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample  $\$  concentration (< 50 times IDL).



#### BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: TC68548 Account: APEXTIXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

QC Batch ID: MP26111 Matrix Type: SOLID Methods: SW846 7471A Units: mg/kg

Prep Date:					06/17/15
Metal	RL	IDL	MDL	MB raw	final
Mercury	0.029	.007	.011	-0.0074	<0.029

Associated samples MP26111: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

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QC Batch ID: MP26111 Matrix Type: SOLID Methods: SW846 7471A Units: mg/kg

Prep Date:

06/17/15

Associated samples MP26111: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $% \left( {\left( {{{\rm{A}}} \right)_{\rm{A}}} \right)$ 

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



QC Batch ID: MP26111 Matrix Type: SOLID Methods: SW846 7471A Units: mg/kg

Prep Date:					06/17/15	
Metal	TC68645- Original	1 MSD	Spikelot HGTXWS1	% Rec	MSD RPD	QC Limit
Mercury	0.0	0.39	0.461	84.5	0.0	20

Associated samples MP26111: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $% \left( {\left( {{{\rm{A}}} \right)_{\rm{A}}} \right)$ 

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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QC Batch ID: MP26111 Matrix Type: SOLID Methods: SW846 7471A Units: mg/kg

Prep Date:			06/17/15	
Metal	LCS Result	Spikelot HGLCD068	% Rec	QC Limits
Mercury	6.7	8.37	80.0	73-128

Associated samples MP26111: TC68548-1, TC68548-2

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

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## Metals CCB MDL Check

Job Number:	1C68548
Account:	APEXTTXD APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek

#### The following elements are braketed by CCB's at or above the MDL.

Sample	Element	Run ID	Time	MDL	Units	CCB Be	fore	CCB Af	'ter
TC68548-1A	Mercury	MA11098	17:00	.050	ug/l	CCB5	-0.067	CCB6	-0.056
TC68548-2A	Mercury	MA11098	17:06	.050	ug/l	CCB5	-0.067	CCB6	-0.056
TC68548-1A	Antimony	MA11100	17:00	1.0	ug/l	CCB7	-0.38	CCB8	-1.0
TC68548-2A	Antimony	MA11100	17:36	1.0	ug/l	CCB7	-0.38	CCB8	-1.0
TC68548-1A	Selenium	MA11100	17:00	.98	ug/l	CCB7	-1.6	CCB8	-0.53
TC68548-2A	Selenium	MA11100	17:36	.98	ug/l	CCB7	-1.6	CCB8	-0.53
TC68548-1	Antimony	MA11114	13.15	073	ug/l	CCB2	-0.27	CCB3	-0.30
TC68548-2	Antimony	MA11114 MA11114	13.15	.073	ug/1 ug/1	CCB2	-0.27	CCB3	-0.30
TC68548-1	Arsenic	MA11114 MA11114	13.27	.073	ug/1 110/1	CCB2	-0.27	CCB3	-0.30
TC68548-2	Arsenic	MA11114	13.13 13.27	074	ug/1 110/1	CCB2	-0.25	CCB3	-0.28
TC68548-1	Bervllium	MA11114	13:15	.053	ug/l	CCB2	-0.27	CCB3	-0.27
TC68548-2	Beryllium	MA11114	13:27	.053	ug/l	CCB2	-0.27	CCB3	-0.27
TC68548-1	Cadmium	MA11114	13:15	.086	ug/l	CCB2	-0.24	CCB3	-0.24
TC68548-2	Cadmium	MA11114	13:33	.086	ug/l	CCB2	-0.24	CCB3	-0.24
TC68548-1	Chromium	MA11114	13:15	.15	ug/l	CCB2	-0.25	CCB3	-0.26
TC68548-2	Chromium	MA11114	13:33	.15	ug/l	CCB2	-0.25	CCB3	-0.26
TC68548-2	Lead	MA11114	13:33	.14	ug/l	CCB2	-0.16	CCB3	-0.092
TC68548-1	Calcium	MA11120	07.44	11	11σ/l	CCB2	-21	CCB3	-18
TC68548-2	Calcium	MA11120	08.03	11	110/1	CCB2	-21	CCB3	-18
TC68548-1	Lead	MA11120	07:37	.14	ug/l	CCB2	-0.23	CCB3	-0.20

Calibration blank validation to the MDL is not a method requirement, but is included for information purposes only.



Section 7



General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- General Chemistry CCB MDL Check



#### METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

# Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP32496/GN66412	2.5	0.0	mg/kg	49.8	48.2	96.8	90-110%
Chloride	GP32496/GN66412	2.5	0.0	mg/kg	49.8	50.3	101.0	90-110%
Fluoride	GP32496/GN66412	2.5	0.0	mg/kg	49.8	49.2	98.8	90-110%
Sulfate	GP32496/GN66412	2.5	0.0	mg/kg	49.8	53.7	107.8	90-110%

Associated Samples: Batch GP32496: TC68548-1, TC68548-2 (\*) Outside of QC limits





#### DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

#### Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Bromide	GP32496/GN66412	TC68635-2	mg/kg	0.0	0.0	0.0	0-20%
Chloride	GP32496/GN66412	TC68635-2	mg/kg	194	196	1.0	0-20%
Fluoride	GP32496/GN66412	TC68635-2	mg/kg	84.9	84.5	0.5	0-20%
Solids, Percent	GN66305	TC68548-1	9	57.8	57.2	1.0	0-5%
Sulfate	GP32496/GN66412	TC68635-2	mg/kg	679	625	8.3	0-20%
рH	GN66306	TC68548-1	su	8.70	8.70	0.0	0-20%

Associated Samples: Batch GN66305: TC68548-1, TC68548-2 Batch GN66306: TC68548-1, TC68548-2 Batch GP32496: TC68548-1, TC68548-2 (\*) Outside of QC limits





#### MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

#### Login Number: TC68548 Account: APEXTTXD - APEX TITAN, Inc. Project: 7020112C079 / Stewart Creek

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP32496/GN66412	TC68635-2	mg/kg	0.0	72.1	91.9(a)	127.5N	80-120%
Chloride	GP32496/GN66412	TC68635-2	mg/kg	194	72.1	234(a)	55.5N	80-120%
Fluoride	GP32496/GN66412	TC68635-2	mg/kg	84.9	72.1	122(a)	51.5N	80-120%
Sulfate	GP32496/GN66412	TC68635-2	mg/kg	679	72.1	437(a)	-335.7(b)	80-120%

Associated Samples:

Associated Samples TC68548-1, TC68548-2 (\*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits

(a) Outside control limits due to matrix interference and/or sample nonhomogeneity.

(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

7.3



## General Chemistry CCB MDL Check

Job Number:	TC68548
Account:	APEXTTXD APEX TITAN, Inc.
Project:	7020112C079 / Stewart Creek

The followin	The following parameters are braketed by CCB's at or above the MDL.							
Sample	Parameter	Run ID	Time	MDL	Units	CCB Before	CCB After	

No CCB's found at or above MDL.

Calibration blank validation to the MDL is not a method requirement, but is included for information purposes only.





April 13, 2016

1302086

Matt Love Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2015 THIRD QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Love:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes FDS system operation during the third quarter of 2015. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall and into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. In their letter dated November 23, 2015, the TCEQ has also requested survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped. These data will be included in the next quarterly report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep floodwaters in Stewart Creek out of the operating portion of the facility, and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were observed over time (W&M, 2013); primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the third quarter of 2015 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.



- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35 and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the third quarter 2015 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the third quarter of 2015 other than described below:

MW-33 and MW-34 were inaccessible for water level measurements at the time of the Third Quarter 2015 inspection as numerous frac tanks were staged in this area including on top of these two wells.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at the Frisco, Texas weather station located in Frisco, Texas (data obtained from http://www.friscoweather.com/daily.htm).

## 3.2 **Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-35 and MW-46 were measured and recorded during the third quarter of 2015. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data. Water levels were not measured at MW-33 or MW-34 because the wells were covered by a water storage (frac) tanks at the time of the inspection. In general, water levels were higher during the second quarter of 2015, which appears to be a result of the heavy rainfall in the area in May and June 2015.

## 3.3 Floodwall Seepage

At the time of the wall inspection on August 8, 2015 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on August 8, 2015. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the French Drain System during third quarter 2015. Analytical results from these samples are included in Table 3 and Attachment A.



#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the third quarter of 2015 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

My Marle

Abby Marlow Staff Environmental Scientist

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

L Kout

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Attachment A: French Drain Water Laboratory Analytical Results

ANM/AMF/FMB



## Table 1 French Drain Daily Flow Volumes

JI	ul-15		Aug	-15		Sep-15		
Total Flow (	gal)	Total Precip (in)	Total Flow (ga	Total Flow (gal)		Total Total Flow (gal) (in)		Total Precip (in)
8,369		1.6	996		0.19	4,067 1		1.95
Date	Flow observed Since Last Reading(gal)	Daily Precip (in)	Date Flow observed Since Last Reading(gal)		Daily Precip (in)	Flow observedDateSince LastReading(gal)		Daily Precip (in)
Wednesday, July 01, 2015	814	0.29	Saturday, August 01, 2015	NR	0	Tuesday, September 01, 2015	24	0
Thursday, July 02, 2015	297	0	Sunday, August 02, 2015	NR	0	Wednesday, September 02, 2015	0	0.21
Friday, July 03, 2015	NR	0.11	Monday, August 03, 2015	146	0	Thursday, September 03, 2015	0	0.04
Saturday, July 04, 2015	NR	0.13	Tuesday, August 04, 2015	24	0	Friday, September 04, 2015	24	0.14
Sunday, July 05, 2015	NR	0	Wednesday, August 05, 2015	48	0	Saturday, September 05, 2015	NR	0
Monday, July 06, 2015	2148	0	Thursday, August 06, 2015	24	0	Sunday, September 06, 2015	NR	0
Tuesday, July 07, 2015	395	0.01	Friday, August 07, 2015	49	0	Monday, September 07, 2015	NR	0.02
Wednesday, July 08, 2015	803	0.50	Saturday, August 08, 2015	NR	0	Tuesday, September 08, 2015	24	0.15
Thursday, July 09, 2015	1018	0.56	Sunday, August 09, 2015	NR	0	Wednesday, September 09, 2015	860	0.50
Friday, July 10, 2015	522	0	Monday, August 10, 2015	72	0	Thursday, September 10, 2015	1093	0.23
Saturday, July 11, 2015	NR	0	Tuesday, August 11, 2015	24	0	Friday, September 11, 2015	348	0
Sunday, July 12, 2015	NR	0	Wednesday, August 12, 2015	24	0	Saturday, September 12, 2015	NR	0
Monday, July 13, 2015	920	0	Thursday, August 13, 2015	24	0	Sunday, September 13, 2015	NR	0
Tuesday, July 14, 2015	142	0	Friday, August 14, 2015	24	0	Monday, September 14, 2015	244	0
Wednesday, July 15, 2015	143	0	Saturday, August 15, 2015	NR	0	Tuesday, September 15, 2015	49	0
Thursday, July 16, 2015	145	0	Sunday, August 16, 2015	NR	0	Wednesday, September 16, 2015	25	0.02
Friday, July 17, 2015	97	0	Monday, August 17, 2015	74	0	Thursday, September 17, 2015	24	0.30
Saturday, July 18, 2015	95	0	Tuesday, August 18, 2015	75	0	Friday, September 18, 2015	23	0.01
Sunday, July 19, 2015	139	0	Wednesday, August 19, 2015	24	0	Saturday, September 19, 2015	NR	0.16
Monday, July 20, 2015	129	0	Thursday, August 20, 2015	44	0.01	Sunday, September 20, 2015	NR	0.16
Tuesday, July 21, 2015	NR	0	Friday, August 21, 2015	0	0	Monday, September 21, 2015	892	0
Wednesday, July 22, 2015	49	0	Saturday, August 22, 2015	NR	0	Tuesday, September 22, 2015	122	0
Thursday, July 23, 2015	50	0	Sunday, August 23, 2015	NR	0	Wednesday, September 23, 2015	97	0
Friday, July 24, 2015	49	0	Monday, August 24, 2015	93	0	Thursday, September 24, 2015	73	0
Saturday, July 25, 2015	NR	0	Tuesday, August 25, 2015	24	0	Friday, September 25, 2015	24	0
Sunday, July 26, 2015	NR	0	Wednesday, August 26, 2015	0	0	Saturday, September 26, 2015	NR	0
Monday, July 27, 2015	195	0	Thursday, August 27, 2015	0	0	Sunday, September 27, 2015	NR	0
Tuesday, July 28, 2015	73	0	Friday, August 28, 2015	24	0.01	Monday, September 28, 2015	73	0
Wednesday, July 29, 2015	49	0	Saturday, August 29, 2015	NR	0.17	Tuesday, September 29, 2015	24	0
Thursday, July 30, 2015	49	0	Sunday, August 30, 2015	NR	0	Wednesday, September 30, 2015	24	0.01
Friday, July 31, 2015	48	0	Monday, August 31, 2015	179	0			

Notes:

Precipitation data obtained from www.friscoweather.com/daily Daily flow volumes provided by Exide.

NR - No Reading

Prepared by: AM 10/09/15 Checked by: JX 10/09/15 Reviewed by: AMF/FMB 3/24/16

Table 2 Perched and Groundwater Monitoring Well Water Elevations

	TOC	Screen	Measurement	Depth to		
Well ID	Elevation	Interval		Groundwater	Groundwater Elevation	
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)	
MW-26	631.93	5-15	3/11/2013	9.98	621.95	
(Groundwater)			4/5/2013	9.52	622.41	
			4/29/2013	9.21	622.72	
			1/21/2014	5.80	626.13	
			7/29/2014	5.79	626.14	
			9/23/2014	8.9	623.03	
			6/12/2015	5.32	626.61	
	(		9/8/2015	5.72	626.21	
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43	
(Groundwater)			4/5/2013	6.96	626.55	
			4/29/2013	6.56	626.95	
			1/21/2014	6.62	626.89	
			//29/2014	6.57	626.94	
			9/23/2014	6.04	627.47	
			6/12/2015	5.21	628.30	
	()( 71	0.00	9/8/2015	6.35	027.10	
IVIVV-31 (Creundurator)	636.71	8-23	5/13/2013	10.58	626.13	
(Groundwater)			7/20/2014	10.87	025.84	
			7/29/2014	10.81	625.90	
			9/23/2014	11.32	025.39 627.10	
			0/12/2015	9.01	627.10	
N/N/ 22	620.06	255	9/8/2015	10.53	626.10	
(Porchod)	030.90	2.0-0	7/20/2014	4.10	626.80	
(i erched)			0/22/2014	4.39	626.37	
			9/23/2014	4.39	627.17	
			0/12/2015	J.77 D	R	
M\\\/_33	632 59	2 5-5	1/21/2013	1.00	631 50	
(Perched)	032.37	2.5-5	7/29/2014	2.14	630.45	
(i ciciled)			9/23/2014	1 55	631.04	
MW-34	632,83	2.5-5	1/21/2014	4 31	628.52	
(Perched)	002100	210 0	7/29/2014	4.51	628.38	
(* = = = = = = = = = = = = = = = = = = =			9/23/2014	4.45	628.38	
			6/12/2015	3.42	629.41	
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY	
(Perched)			7/29/2014	DRY	DRY	
( ,			9/23/2014	DRY	DRY	
			6/12/2015	4.97	627.58	
			9/8/2015	DRY	DRY	
MW-46	630.98	10-20	1/21/2014	5.21	625.77	
(Groundwater)		-	7/29/2014	5.47	625.51	
· · · ·			9/23/2014	5.08	625.90	
			6/12/2015	5.50	625.48	
			09/08/15	4.17	626.81	

Notes:

1. bgs - below ground surface.

2. msl - above mean sea level.

3. btoc - below top of casing.

4. R - depth to groundwater was disqualified as a field error because recorded water depth was greater than total depth of the well

Checked by: JX 10/12/15 Reviewed by: AMF/JAW/FMB 1/7/15

Prepared by: AM 10/12/15

	Samp FD072	<b>ble ID</b> 115-01	Samp FD072	o <b>le ID</b> 115-02
	Date Co	ollected	Date Collected	
	7/21/20	15 10:15	7/21/20 <sup>-</sup>	15 10:15
Metals				
Parameter:	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	0.010	mg/L
Barium	NA	mg/L	0.100	mg/L
Cadmium	NA	mg/L	0.0014	mg/L
Chromium	NA	mg/L	0.019	mg/L
Copper	NA	mg/L	0.0557	mg/L
Iron	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.195	mg/L
Manganese	NA	mg/L	ND	mg/L
Nickel	NA	mg/L	0.009	mg/L
Selenium	NA	mg/L	0.0183	mg/L
Silver	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	0.142	mg/L
Mercury	NA	mg/L	ND	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Total Suspended Soilds	6.2	mg/L	NA	mg/L
Total Dissolved Solids	2,480	mg/L	NA	mg/L

Notes:

NA - Not Analyzed
 ND - Not Detected

Prepared by: KK 10/16/15 Checked by: AM 10/16/15 Reviewed by: AMF/JAW/FMB 1/7/15





Order ID: 15070431 Date: 7/28/2015 Page 10 of 22

Exide Technologies Eduardo Salazar

## **Analytical Report**

#### Project Name: Raw Grab Samples

Customer Sample I Oxidor Sample I Sample Receive	Matrix: Liquid Sample Collected: 7/21/2015 10:15							
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	25	25.0	2480	mg/L	07/22/15 14:35	SM-2540-C	V.V.	
Total Suspended Solids	5	5.0	6.2	mg/L	07/23/15 10:20	SM-2540-D	V.V.	





Order ID: 15070431 Date: 7/28/2015 Page 11 of 22

Exide Technologies Eduardo Salazar

## **Analytical Report**

## Project Name: Raw Grab Samples

Customer Sample ID: FD072115-02 Oxidor Sample ID: 15070431-010 Sample Received: 7/22/2015			Matrix: Liquid Sample Collected: 7/21/2015 10:15					
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								. lugo
Digested by method 200.8 on 0	7/22/15 at 13:47							
Arsenic	0.005	0.005	0.010	mg/L	07/23/15 15:55	200.8	GS	
Barium	0.005	0.005	0.100	mg/L	07/23/15 15:55	200.8	G.S.	
Cadmium	0.001	0.0010	0.0014	mg/L	07/23/15 15:55	200.8	G.S.	
Chromium	0.005	0.005	0.019	mg/L	07/23/15 15:55	200.8	GS	
Copper	0.005	0.0050	0.0557	mg/L	07/23/15 15:55	200.8	G.S.	
Iron	0.5	0.50	ND	mg/L	07/23/15 15:55	200.8	G.S.	
Lead	0.005	0.005	0.195	mg/L	07/23/15 15:55	200.8	G.S.	
Manganese	0.002	0.002	ND	mg/L	07/23/15 15:55	200.8	G S	
Nickel	0.005	0.005	0.009	mg/L	07/23/15 15:55	200.8	G S	
Selenium	0.005	0.0050	0.0183	mg/L	07/23/15 15:55	200.8	GS	
Silver	0.001	0.001	ND	mg/L	07/23/15 15:55	200.8	G.S.	
Zinc	0.005	0.005	0.142	mg/L	07/23/15 15:55	200.8	G.S.	
Digested by method 245.1 on 07	/23/15 at 11:03			Ŧ			0.0.	
Mercury	0.0002	0.0002	ND	mg/L	07/23/15 17:28	245.1	C.F.	



January 24, 2017

Brad Weaver Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2015 FOURTH QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested that monitoring of the FDS be carried out by the facility and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the fourth quarter of 2015. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in the previous report, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc., 2013), the concrete retaining wall along the southern edge of the process area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility, and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plant. Areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected behind the flood wall and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment and offsite disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the fourth quarter of 2015 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.



1302086

- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35 and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the fourth quarter 2015 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the fourth quarter of 2015 other than described below:

MW-32 and MW-46 were inaccessible for water level measurements at the time of the Fourth Quarter 2015 inspection due to staged equipment.

A more detailed description of the results of data collection activities and inspections is included in Section 3 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25# history/ s20150203/e20160204/myear).

#### **3.2 Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-33, MW-34, and MW-35 were measured and recorded during the fourth quarter of 2015. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. As mentioned above, water levels were not measured at MW-32 or MW-46 during the Fourth Quarter 2015 inspections. In general, water levels were similar to those measured in the second quarter of 2015.

#### 3.3 Floodwall Seepage

At the time of the wall inspection on December 17, 2015 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

#### 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on December 17, 2015. As such, no samples of white crystalline material were collected or analyzed.

#### 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during fourth quarter 2015. Analytical results from these samples are included in Table 3 and Attachment A.



#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the fourth quarter of 2015 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Butt Farth

Brett E. Forthaus Environmental Engineer

Root

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer



#### Table 1 French Drain Daily Flow Volumes

Oct-15				Nov-15		Dec-15			
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	
31,990		6.94	27,	367	10.4	8,406		5.06	
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	
10/1/2015	97	0.06	11/1/2015	NR	0.12	12/1/2015	0	0.00	
10/2/2015	171	0.00	11/2/2015	12,196	0.01	12/2/2015	0	0.00	
10/3/2015	NR	0.00	11/3/2015	1,005	0.01	12/3/2015	0	0.00	
10/4/2015	NR	0.00	11/4/2015	736	0.08	12/4/2015	0	0.00	
10/5/2015	242	0.00	11/5/2015	504	0.18	12/5/2015	NR	0.00	
10/6/2015	49	0.00	11/6/2015	706	0.00	12/6/2015	NR	0.00	
10/7/2015	24	0.00	11/7/2015	0	0.09	12/7/2015	0	0.00	
10/8/2015	48	0.00	11/8/2015	0	0.00	12/8/2015	0	0.00	
10/9/2015	24	0.00	11/9/2015	1,024	0.00	12/9/2015	0	0.00	
10/10/2015	NR	0.00	11/10/2015	NR	0.00	12/10/2015	0	0.00	
10/11/2015	NR	0.00	11/11/2015	314	0.02	12/11/2015	NR	0.00	
10/12/2015	73	0.00	11/12/2015	194	0.00	12/12/2015	NR	0.03	
10/13/2015	24	0.00	11/13/2015	122	0.00	12/13/2015	NR	0.93	
10/14/2015	0	0.00	11/14/2015	NR	0.00	12/14/2015	0	0.00	
10/15/2015	33	0.00	11/15/2015	NR	0.76	12/15/2015	6,309	0.00	
10/16/2015	0	0.00	11/16/2015	3,487	0.32	12/16/2015	177	0.00	
10/17/2015	NR	0.00	11/17/2015	0	0.73	12/17/2015	796	0.00	
10/18/2015	NR	0.00	11/18/2015	4,118	0.00	12/18/2015	NR	0.00	
10/19/2015	21	0.00	11/19/2015	1,440	0.00	12/19/2015	NR	0.00	
10/20/2015	0	0.00	11/20/2015	0	0.00	12/20/2015	NR	0.00	
10/21/2015	0	0.00	11/21/2015	NR	0.00	12/21/2015	828	0.00	
10/22/2015	25	2.04	11/22/2015	NR	0.00	12/22/2015	150	0.00	
10/23/2015	13,488	2.09	11/23/2015	1,276	0.00	12/23/2015	NR	0.00	
10/24/2015	NR	0.73	11/24/2015	123	0.00	12/24/2015	NR	0.00	
10/25/2015	NR	0.08	11/25/2015	122	0.00	12/25/2015	NR	0.00	
10/26/2015	12,247	0.00	11/26/2015	NR	2.25	12/26/2015	NR	1.54	
10/27/2015	2,545	0.00	11/27/2015	NR	4.42	12/27/2015	NR	2.10	
10/28/2015	1,194	0.00	11/28/2015	NR	0.57	12/28/2015	146	0.45	
10/29/2015	696	0.00	11/29/2015	NR	0.81	12/29/2015	0	0.01	
10/30/2015	989	1.23	11/30/2015	0	0.03	12/30/2015	0	0.00	
10/31/2015	NR	0.71				12/31/2015	0	0.00	

Notes:

Precipitation data obtained from https://www.wunderground.com/personal-weatherstation/ dashboard?ID=KTXDALLA25#history/s20150203/e20160204/myear

Daily flow volumes provided by Exide.

Prepared by: PRB 2/4/16 Checked by: MDT 2/4/16, BEF 10/31/16 Reviewed by: FMB 01/02/17

NR - Not Recorded

Stewart Creek Elevations									
Su	rvev Point		Measurement	Eleva	ation				
Tropost 1	.,		Date	(it)	msi)				
Top of North Bank			3/7/2016	629	2 74				
Toe of North Bank			3/7/2016	624	1 79				
Creek Centerline			3/7/2016	622	2.79				
Toe of South Bank			3/7/2016	624	1.27				
Top of South Bank			3/7/2016	634	1.09				
Transect 2									
Top of North Bank			3/7/2016	627	7.97				
Toe of North Bank			3/7/2016	623	3.57				
Toe of South Bank			3/7/2016	624	1.04				
Top of South Ballk			3/1/2010	030	0.02				
Top of North Bank			3/7/2016	628	3.20				
Toe of North Bank			3/7/2016	622	2.70				
Toe of South Bank			3/7/2016	622	2.88				
Top of South Bank			3/7/2016	628	3.18				
	TOC	Monitoring V	Vell Water Elevation	ons Donth to	Croundwator				
Well ID	Elevation	Interval (ft bgs)	Measurement	Groundwater	Elevation				
MW-26	631.93	5-15	3/11/2013		621.95				
(Groundwater)	031.75	5-15	4/5/2013	9.90	622.41				
(			4/29/2013	9,21	622.72				
			1/21/2014	5.80	626.13				
			7/29/2014	5.79	626.14				
			9/23/2014	8.9	623.03				
			6/12/2015	5.32	626.61				
			9/8/2015	5.72	626.21				
MM/ 20	(22.51		12/17/2015	5.32	626.61				
WW-29 (Groupdwater)	633.51	4.5-14.5	3/11/2013	13.08	620.43				
(Groundwater)			4/29/2013	6.56	626.95				
			1/21/2014	6.62	626.89				
			7/29/2014	6.57	626.94				
			9/23/2014	6.04	627.47				
			6/12/2015	5.21	628.30				
			9/8/2015	6.35	627.16				
M/M/ 21	626 71	0 22	5/12/2012	5.67	627.04				
(Groundwater)	030.71	0-23	1/21/2013	10.56	625.84				
(orounand tor)			7/29/2014	10.81	625.90				
			9/23/2014	11.32	625.39				
			6/12/2015	9.61	627.10				
			9/8/2015	10.53	626.18				
MM4 22	(20.0)		12/17/2015	9.42	627.29				
IVIVV-32 (Porchod)	030.90	2.5-5	7/20/2014	4.16	020.80 626.27				
(reicheu)			9/23/2014	4.39	626.37				
			6/12/2015	3.79	627.17				
			9/8/2015	R	R				
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50				
(Perched)			7/29/2014	2.14	630.45				
			9/23/2014	1.55	631.04				
MW/_3/	632.02	255	12/1/2015	1.21	631.38				
(Perched)	032.03	2.0-0	7/29/2014	4.31	628.32				
			9/23/2014	4.45	628.38				
			6/12/2015	3.42	629.41				
			12/17/2015	3.03	629.80				
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY				
(Perched)			7/29/2014	DRY	DRY				
			9/23/2014	DRY	DRY				
			6/12/2015	4.97	027.58 DPV				
			12/17/2015		628.45				
MW-46	630 98	10-20	1/21/2014	5 21	625 77				
(Groundwater)	000.70	10-20	7/29/2014	5.47	625.51				
,			9/23/2014	5.08	625.90				
			6/12/2015	5.50	625.48				
			9/8/2015	4.17	626.81				
Notes:			Prepared b	y: PRB 2/4/2016, u	pdated 10/27/2016				

bgs - below ground surface.
 msl - above mean sea level.

Prepared by: PRB 2/4/2016, updated 10/27/2016 Checked by: MDT 2/4/2016, 10/27/2016 Reviewed by: AMF 10/28/2016, FMB 01/02/17

btoc - below top of casing.
 R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

	Samp	ole ID	Samp	Sample ID		le ID
	FD101	515-01	FD101515-02		FD101515-03	
	Date Collected		Date Collected		Date Collected	
	10/15/20	15 12:00	10/15/20	15 12:00	10/15/20	15 12:00
Metals						
Parameter:	Result	Units	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	0.016	mg/L	NA	mg/L
Barium	NA	mg/L	0.068	mg/L	NA	mg/L
Cadmium	NA	mg/L	0.0036	mg/L	NA	mg/L
Chromium	NA	mg/L	0.024	mg/L	NA	mg/L
Copper	NA	mg/L	0.1259	mg/L	NA	mg/L
Iron	NA	mg/L	ND	mg/L	NA	mg/L
Lead	NA	mg/L	0.351	mg/L	NA	mg/L
Manganese	NA	mg/L	0.007	mg/L	NA	mg/L
Nickel	NA	mg/L	0.019	mg/L	NA	mg/L
Selenium	NA	mg/L	0.0331	mg/L	NA	mg/L
Silver	NA	mg/L	ND	mg/L	NA	mg/L
Zinc	NA	mg/L	0.192	mg/L	NA	mg/L
Mercury	NA	mg/L	0.0003	mg/L	NA	mg/L
General Chemistry						
Parameter:	Result	Units	Result	Units	Result	Units
Total Suspended Solids	NA	mg/L	NA	mg/L	23	mg/L
Total Dissolved Solids	3,280	mg/L	NA	mg/L	NA	mg/L

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

Prepared by: PRB 02/02/16 Checked by: MDT 02/04/16 Reviewed by: FMB 01/02/17



1302086Y002.mxd





Order ID: 15100349 Date: 10/21/2015 Page 6 of 11

Exide Technologies Eduardo Salazar

## **Analytical Report**

## Project Name: Raw Grab Samples

Customer Sample Oxidor Sample Sample Receiv	ID: <b>FD10</b> ID: 1510 ed: 10/15	0 <b>1515-01</b> 0349-005 5/2015		Sam	Matrix: L	iquid 0/15/2015 1	2:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Mothod	2.00	_
General Chemistry					Date Analyzed	Metriod	Analyst	Flags
Total Dissolved Solids	25	25.0	3280	) mg/L	10/15/15 16:25	SM-2540-C	PC	




Order ID: 15100348 Date: 10/21/2015 Page 6 of 13

Exide Technologies Eduardo Salazar

# Analytical Report

Customer Samp Oxidor Samp Sample Rece	le ID: FD1 le ID: 1510 eived: 10/1	<b>01515-02</b> )0348-005 5/2015		Sam	Matrix: L ple Collected: 1	iquid 0/15/2015 /	12.00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Mothed And		
Metals					Bute Analyzeu	Method	Analyst	Flags
Digested by method 200.8 on 10	0/16/15 at 09:50							
Arsenic	0.005	0.005	0.016	ma/L	10/19/15 16:25	200 0	0.5	
Barium	0.005	0.005	0.068	ma/l	10/10/15 16:25	200.8	G.F.	
Cadmium	0.001	0.0010	0.0036	ma/l	10/10/15 16:25	200.8	C.F.	
Chromium	0.005	0.005	0.024	mg/L	10/19/15 10:25	200.8	C.F.	
Copper	0.005	0.0050	0.024	mg/L	10/19/15 16:25	200.8	C.F.	
Iron	0.5	0.50	0.1200 ND	mg/L	10/19/15 16:25	200.8	C.F.	
Lead	0.005	0.005	0.254	mg/L	10/19/15 16:25	200.8	C.F.	
Manganese	0.002	0.002	0.007	mg/L	10/19/15 16:25	200.8	C.F.	
Nickel	0.005	0.005	0.007	mg/L	10/19/15 16:25	200.8	C.F.	
Selenium	0.005	0.0050	0.019	mg/L	10/19/15 16:25	200.8	C.F.	
Silver	0.001	0.001	0.0331	mg/L	10/19/15 16:25	200.8	C.F.	
Zinc	0.001	0.001	ND	mg/L	10/19/15 16:25	200.8	C.F.	
Digested by method 245.1 on 10	/19/15 at 10:27	0.005	0.192	mg/L	10/19/15 16:25	200.8	C.F.	
Mercury	0.0002	0.0002	0.0003	mg/L	10/19/15 17:20	245 1	МА	





Order ID: 15100350 Date: 10/21/2015 Page 6 of 11

Exide Technologies Eduardo Salazar

# **Analytical Report**

Customer Sample Oxidor Sample Sample Receive	ID: <b>FD10</b> ID: 1510 ed: 10/15	0 <b>1515-03</b> 0350-005 5/2015		Sam	Matrix: L	.iquid	2.00	
Parameter	SQL	Result	Unite	2:00				
General Chemistry			itobult	Unita	Date Analyzed	Method	Analyst	Flags
Total Suspended Solids	5	5.0	22.8	3 mg/L	10/16/15 13:53	SM-2540-D	P.C.	



January 24, 2017

Brad Weaver Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2016 FIRST QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the first quarter of 2016. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in the previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility, and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment and offsite disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the first quarter of 2016 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.

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- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35 and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the first quarter 2016 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the first quarter of 2016.

A more detailed description of the results of data collection activities and inspections is included in Section 3 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25# history/s20150411/e20160411/myear).

### 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the first quarter of 2016. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary much from the previous readings in 2015 with some wells having a decrease in water level while others had a slight increase.

### 3.3 Floodwall Seepage

At the time of the wall inspection on February 3, 2016 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

### 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on February 3, 2016. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during first quarter 2016. Analytical results from these samples are included in Table 3 and Attachment A.



### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the first quarter of 2016 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Butt Farth

Brett Forthaus Environmental Engineer

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

- L Boot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

 Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 



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Jan-16			Feb-16			Mar-16		
Total Flow (gal) Precip (in)			Total Flow (gal) Pr			Total Flow (gal)	Total Flow (gal) Pr	
14,181		1.12	2,789		2.28	11,701		2.08
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Friday, January 01, 2016	NR	0.00	Monday, February 01, 2016	303	0.00	Tuesday, March 01, 2016	5,238	0.00
Saturday, January 02, 2016	NR	0.00	Tuesday, February 02, 2016	76	0.00	Wednesday, March 02, 2016	385	0.00
Sunday, January 03, 2016	NR	0.00	Wednesday, February 03, 2016	76	0.00	Thursday, March 03, 2016	70	0.00
Monday, January 04, 2016	0	0.00	Thursday, February 04, 2016	55	0.00	Friday, March 04, 2016	196	0.00
Tuesday, January 05, 2016	0	0.00	Friday, February 05, 2016	51	0.00	Saturday, March 05, 2016	NR	0.00
Wednesday, January 06, 2016	0	0.65	Saturday, February 06, 2016	NR	0.01	Sunday, March 06, 2016	NR	0.00
Thursday, January 07, 2016	0	0.06	Sunday, February 07, 2016	NR	0.00	Monday, March 07, 2016	340	0.10
Friday, January 08, 2016	0	0.01	Monday, February 08, 2016	151	0.00	Tuesday, March 08, 2016	55	1.01
Saturday, January 09, 2016	NR	0.00	Tuesday, February 09, 2016	51	0.00	Wednesday, March 09, 2016	1,338	0.45
Sunday, January 10, 2016	NR	0.00	Wednesday, February 10, 2016	25	0.00	Thursday, March 10, 2016	468	0.22
Monday, January 11, 2016	6,836	0.00	Thursday, February 11, 2016	51	0.00	Friday, March 11, 2016	315	0.08
Tuesday, January 12, 2016	0	0.00	Friday, February 12, 2016	50	0.00	Saturday, March 12, 2016	NR	0.00
Wednesday, January 13, 2016	3,856	0.00	Saturday, February 13, 2016	NR	0.00	Sunday, March 13, 2016	NR	0.00
Thursday, January 14, 2016	281	0.00	Sunday, February 14, 2016	NR	0.00	Monday, March 14, 2016	1,084	0.00
Friday, January 15, 2016	201	0.00	Monday, February 15, 2016	NR	0.00	Tuesday, March 15, 2016	147	0.00
Saturday, January 16, 2016	NR	0.03	Tuesday, February 16, 2016	130	0.00	Wednesday, March 16, 2016	124	0.00
Sunday, January 17, 2016	NR	0.01	Wednesday, February 17, 2016	25	0.00	Thursday, March 17, 2016	124	0.00
Monday, January 18, 2016	50	0.00	Thursday, February 18, 2016	25	0.00	Friday, March 18, 2016	74	0.01
Tuesday, January 19, 2016	461	0.00	Friday, February 19, 2016	50	0.00	Saturday, March 19, 2016	NR	0.00
Wednesday, January 20, 2016	187	0.00	Saturday, February 20, 2016	NR	0.00	Sunday, March 20, 2016	NR	0.00
Thursday, January 21, 2016	142	0.36	Sunday, February 21, 2016	NR	0.05	Monday, March 21, 2016	228	0.00
Friday, January 22, 2016	1,198	0.00	Monday, February 22, 2016	375	0.30	Tuesday, March 22, 2016	74	0.00
Saturday, January 23, 2016	NR	0.00	Tuesday, February 23, 2016	623	1.92	Wednesday, March 23, 2016	75	0.14
Sunday, January 24, 2016	NR	0.00	Wednesday, February 24, 2016	672	0.00	Thursday, March 24, 2016	NR	0.00
Monday, January 25, 2016	513	0.00	Thursday, February 25, 2016	0	0.00	Friday, March 25, 2016	NR	0.00
Tuesday, January 26, 2016	153	0.00	Friday, February 26, 2016	0	0.00	Saturday, March 26, 2016	NR	0.00
Wednesday, January 27, 2016	101	0.00	Saturday, February 27, 2016	NR	0.00	Sunday, March 27, 2016	NR	0.00
Thursday, January 28, 2016	127	0.00	Sunday, February 28, 2016	NR	0.00	Monday, March 28, 2016	114	0.00
Friday, January 29, 2016	75	0.00	Monday, February 29, 2016	0	0.00	Tuesday, March 29, 2016	137	0.00
Saturday, January 30, 2016	NR	0.00				Wednesday, March 30, 2016	558	0.06
Sunday, January 31, 2016	NR	0.00				Thursday, March 31, 2016	557	0.01

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#

history/s20150411/e20160411/myear

Daily flow volumes provided by Exide.

NR - Not Recorded

Prepared by: MDT 04/11/16 Checked by: BEF 11/01/16 Reviewed by: FMB 01/02/17

Table 2 Perched and Groundwater Monitoring Well Water Elevations

Stewart Creek Elevations										
Surv	ev Point		Measurement	El	evation					
Transact 1	-,		Date	(	rt msi)					
Top of North Bank			3/7/2016		528.74					
Toe of North Bank			3/7/2016		624.79					
Creek Centerline			3/7/2016		622.79					
Toe of South Bank			3/7/2016		624.27					
Transect 2			3/7/2010		034.09					
Top of North Bank			3/7/2016		627.97					
Toe of North Bank			3/7/2016		623.57					
Toe of South Bank			3/7/2016		624.04					
Transect 3			3/1/2010		550.52					
Top of North Bank			3/7/2016		528.20					
Toe of North Bank			3/7/2016		622.70					
Toe of South Bank			3/7/2016		522.88 529.19					
Top of South Ballk	TOC	Scroon	3/1/2010	Donth to	Groundwater					
Well ID	Elevation	Interval	Measurement	Groundwater	Elevation					
	(ft msl)	(ft bas)	Date	(ft btoc)	(ft msl)					
MW-26	631.93	5-15	3/11/2013	9.98	621.95					
(Groundwater)			4/5/2013	9.52	622.41					
			4/29/2013	9.21	622.72					
			7/29/2014	5.80	626.13					
			9/23/2014	8.9	623.03					
			6/12/2015	5.32	626.61					
			9/8/2015	5.72	626.21					
			2/29/2016	5.32	626.61 626.52					
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43					
(Groundwater)			4/5/2013	6.96	626.55					
			4/29/2013	6.56	626.95					
			7/29/2014	6.62 6.57	626.89 626.94					
			9/23/2014	6.04	627.47					
			6/12/2015	5.21	628.30					
			9/8/2015	6.35	627.16					
			2/29/2016	5.67	627.84 627.72					
MW-31	636.71	8-23	5/13/2013	10.58	626.13					
(Groundwater)			1/21/2014	10.87	625.84					
			7/29/2014	10.81	625.90					
			9/23/2014	9.61	625.39 627.10					
			9/8/2015	10.53	626.18					
			12/17/2015	9.42	627.29					
1444.000	(00.0(	0.5.5	2/29/2016	9.78	626.93					
(Perched)	630.96	2.5-5	7/29/2014	4.16	626.80					
(i crened)			9/23/2014	4.59	626.37					
			6/12/2015	3.79	627.17					
			9/8/2015	R	R					
MW-33	632 59	2 5-5	2/29/2016	3.57	631.50					
(Perched)	002107	2.0 0	7/29/2014	2.14	630.45					
			9/23/2014	1.55	631.04					
			12/17/2015	1.21	631.38					
MW-34	632.83	2 5-5	2/29/2016	1.07	628.52					
(Perched)	002100	2.0 0	7/29/2014	4.45	628.38					
			9/23/2014	4.45	628.38					
			6/12/2015	3.42	629.41					
			2/29/2016	3.03	630.88					
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY					
(Perched)			7/29/2014	DRY	DRY					
			9/23/2014	DRY	DRY					
			6/12/2015 9/8/2015	4.97 DRV	027.58 DRY					
			12/17/2015	4.10	628.45					
			2/29/2016	3.86	628.69					
MW-46	630.98	10-20	1/21/2014	5.21	625.77					
(Groundwater)			//29/2014	5.47	625.51 625.90					
			6/12/2015	5.50	625.48					
			9/8/2015	4.17	626.81					
			2/29/2016	5.23	625.75					

Notes:

Prepared by: MDT 04/11/16, updated 10/31/16 Checked by: BEF 11/01/16 Reviewed by: FMB 01/02/17

1. bgs - below ground surface.
 2. msl - above mean sea level.
 3. btoc - below top of casing.
 4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

	Samp	ole ID	Samp	ole ID	Samp	le ID
	FD012016-01		FD012	FD012016-02		016-03
	Date Co	ollected	Date Co	ollected	Date Co	ollected
	1/20/20	16 15:05	1/20/20	16 15:05	1/20/20	16 15:05
Metals						
Parameter:	Result	Units	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	0.015	mg/L	NA	mg/L
Barium	NA	mg/L	0.102	mg/L	NA	mg/L
Cadmium	NA	mg/L	0.0295	mg/L	NA	mg/L
Chromium	NA	mg/L	0.018	mg/L	NA	mg/L
Copper	NA	mg/L	0.0673	mg/L	NA	mg/L
Iron	NA	mg/L	1.79	mg/L	NA	mg/L
Lead	NA	mg/L	0.836	mg/L	NA	mg/L
Manganese	NA	mg/L	0.058	mg/L	NA	mg/L
Nickel	NA	mg/L	0.021	mg/L	NA	mg/L
Selenium	NA	mg/L	0.0101	mg/L	NA	mg/L
Silver	NA	mg/L	ND	mg/L	NA	mg/L
Zinc	NA	mg/L	0.107	mg/L	NA	mg/L
Mercury	NA	mg/L	0.0003	mg/L	NA	mg/L
General Chemistry						
Parameter:	Result	Units	Result	Units	Result	Units
Total Suspended Solids	NA	mg/L	NA	mg/L	232	mg/L
Total Dissolved Solids	1,540	mg/L	NA	mg/L	NA	mg/L

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

Prepared by: MDT 04/07/16 Checked by: BEF 11/02/16 Reviewed by: FMB 01/02/17



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

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Order ID: 16010448 Date: 1/29/2016 Page 6 of 14

Exide Technologies Eduardo Salazar

# **Analytical Report**

Customer Sample ID:	FD012	2016-02									
Oxidor Sample ID:	448-005			Matrix Li	iquid						
Sample Received	1/21/2016			Sample Collected: 1/20/2016 15:05							
Dennet				ouin	ipie obliceted. II	.05					
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags			
Metals											
Digested by method 200.8 on 01/21/16 at	11:41										
Arsenic	0.003	0.005	0.015	mg/L	01/21/16 16:17	200.8	C.F.				
Barium	0.003	0.005	0.102	mg/L	01/21/16 16:17	200.8	C.F.				
Cadmium	0.0005	0.001	0.0295	mg/L	01/21/16 16:17	200.8	C.F.				
Chromium	0.003	0.005	0.018	mg/L	01/21/16 16:17	200.8	C.F.				
Copper	0.0025	0.005	0.0673	mg/L	01/21/16 16:17	200.8	C.F.				
Iron	0.25	0.5	1.79	mg/L	01/21/16 16:17	200.8	C.F.				
Lead	0.003	0.005	0.836	mg/L	01/21/16 16:17	200.8	C.F.				
Manganese	0.001	0.002	0.058	mg/L	01/21/16 16:17	200.8	C.F.				
Nickel	0.003	0.005	0.021	mg/L	01/21/16 16:17	200.8	C.F.				
Selenium	0.0025	0.005	0.0101	mg/L	01/21/16 16:17	200.8	C.F.				
Silver	0.001	0.001	ND	mg/L	01/21/16 16:17	200.8	C.F.				
Zinc	0.003	0.005	0.107	mg/L	01/21/16 16:17	200.8	C.F.				
Digested by method 245.1 on 01/21/16 at	11:45										
Mercury	0.0001	0.0002	0.0003	mg/L	01/21/16 15:34	245.1	M.A.				





Order ID: 16010449 Date: 1/27/2016 Page 6 of 11

Exide Technologies Eduardo Salazar

# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD012 16010 1/21/2	2 <b>016-01</b> 449-005 016		Sam	Matrix: L	iquid	:05	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flores
General Chemistry Total Dissolved Solids	50.0	50	1540	mg/L	01/21/16 15:20	SM-2540-C	Allalyst A.E.	Flags





Order ID: 16010447 Date: 1/27/2016 Page 6 of 11

Exide Technologies Eduardo Salazar

# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD012 16010 1/21/2	2 <b>016-03</b> 447-005 016		Sar	Matrix: L	iquid /20/2016 15	:05	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	
General Chemistry Total Suspended Solids	10.0	10	232	mg/L	01/21/16 13:20	SM-2540-D	Analyst A.E.	Flags



January 24, 2017

Brad Weaver Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2016 SECOND QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the second quarter of 2016. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in the previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment and offsite disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the second quarter of 2016 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.

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- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the second quarter 2016 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the second quarter of 2016.

A more detailed description of the results of data collection activities and inspections is included in Section 3 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/s20151107/e20161107/myear).

### 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the second quarter of 2016. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary much from the previous reading in 2016 with most wells having a slight decrease in water elevation.

### 3.3 Floodwall Seepage

At the time of the wall inspection on June 1, 2016 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on June 1, 2016. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during second quarter 2016. Analytical results from these samples are included in Table 3 and Attachment A.

### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the second quarter of 2016 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.



## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

**Brett Forthaus** 

#### **GOLDER ASSOCIATES INC.**

Butt Forthe

**Environmental Engineer** 

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

LBoot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 



Total Flow (gal)

May-16

		Jun-16						
	Total Precip (in)	Total Flow (gal)	Total Precip (in)					
	5.37	14,056	14,056					
aily Iow gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)				
NR	0.00	Wednesday, June 01, 2016	957	0.00				

		(in)	)		(in)			(in)
18,513		7.01	9,351		5.37	14,056		5.57
Date	Daily Flow (gal)	Daily Precip (in)	Daily Date Flow (gal)		Daily Precip (in)	Daily Date Flow (gal)		Daily Precip (in)
Friday, April 01, 2016	74	0.00	Sunday, May 01, 2016	NR	0.00	Wednesday, June 01, 2016	957	0.00
Saturday, April 02, 2016	NR	0.00	Monday, May 02, 2016	1,147	0.40	Thursday, June 02, 2016	453	2.05
Sunday, April 03, 2016	NR	0.00	Tuesday, May 03, 2016	521	0.00	Friday, June 03, 2016	995	0.00
Monday, April 04, 2016	173	0.00	Wednesday, May 04, 2016	315	0.00	Saturday, June 04, 2016	NR	0.01
Tuesday, April 05, 2016	50	0.00	Thursday, May 05, 2016	174	0.00	Sunday, June 05, 2016	NR	0.00
Wednesday, April 06, 2016	31	0.00	Friday, May 06, 2016	124	0.00	Monday, June 06, 2016	1,085	0.00
Thursday, April 07, 2016	0	0.00	Saturday, May 07, 2016	NR	0.00	Tuesday, June 07, 2016	356	0.00
Friday, April 08, 2016	3	0.00	Sunday, May 08, 2016	NR	0.40	Wednesday, June 08, 2016	250	0.00
Saturday, April 09, 2016	NR	0.01	Monday, May 09, 2016	1,010	0.40	Thursday, June 09, 2016	224	0.00
Sunday, April 10, 2016	NR	0.00	Tuesday, May 10, 2016	450	0.01	Friday, June 10, 2016	149	0.00
Monday, April 11, 2016	230	1.16	Wednesday, May 11, 2016	223	0.00	Saturday, June 11, 2016	NR	0.02
Tuesday, April 12, 2016	1,051	0.00	Thursday, May 12, 2016	253	0.00	Sunday, June 12, 2016	NR	2.44
Wednesday, April 13, 2016	557	0.70	Friday, May 13, 2016	121	0.00	Monday, June 13, 2016	3,142	1.05
Thursday, April 14, 2016	971	0.00	Saturday, May 14, 2016	NR	0.00	Tuesday, June 14, 2016	3,548	0.00
Friday, April 15, 2016	428	0.00	Sunday, May 15, 2016	NR	0.00	Wednesday, June 15, 2016	780	0.00
Saturday, April 16, 2016	NR	0.00	Monday, May 16, 2016	427	0.03	Thursday, June 16, 2016	319	0.00
Sunday, April 17, 2016	NR	1.91	Tuesday, May 17, 2016	337	0.23	Friday, June 17, 2016	369	0.00
Monday, April 18, 2016	785	0.70	Wednesday, May 18, 2016	374	0.10	Saturday, June 18, 2016	NR	0.00
Tuesday, April 19, 2016	1,611	0.00	Thursday, May 19, 2016	453	0.31	Sunday, June 19, 2016	NR	0.00
Wednesday, April 20, 2016	2,472	1.15	Friday, May 20, 2016	332	0.00	Monday, June 20, 2016	501	0.00
Thursday, April 21, 2016	2,437	0.24	Saturday, May 21, 2016	NR	0.00	Tuesday, June 21, 2016	139	0.00
Friday, April 22, 2016	425	0.00	Sunday, May 22, 2016	NR	0.00	Wednesday, June 22, 2016	117	0.00
Saturday, April 23, 2016	NR	0.00	Monday, May 23, 2016	599	0.62	Thursday, June 23, 2016	96	0.00
Sunday, April 24, 2016	NR	0.00	Tuesday, May 24, 2016	437	0.00	Friday, June 24, 2016	96	0.00
Monday, April 25, 2016	623	0.00	Wednesday, May 25, 2016	305	0.00	Saturday, June 25, 2016	NR	0.00
Tuesday, April 26, 2016	379	1.03	Thursday, May 26, 2016	239	0.02	Sunday, June 26, 2016	NR	0.00
Wednesday, April 27, 2016	5,104	0.00	Friday, May 27, 2016	350	0.86	Monday, June 27, 2016	252	0.00
Thursday, April 28, 2016	782	0.00	Saturday, May 28, 2016	NR	0.00	Tuesday, June 28, 2016	84	0.00
Friday, April 29, 2016	327	0.11	Sunday, May 29, 2016	NR	0.43	Wednesday, June 29, 2016	72	0.00
Saturday, April 30, 2016	NR	0.00	Monday, May 30, 2016	NR	0.40	Thursday, June 30, 2016	72	0.00
			Tuesday, May 31, 2016	1,160	1.16			

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20151107/e20161107/myear Daily flow volumes provided by Exide.

Apr-16

Total Flow (gal)

Total

Precip

NR - Not Recorded

Prepared by: BEF 11/07/16 Checked by: KK 11/07/16 Reviewed by: FMB 01/02/17 
 Table 2

 Perched and Groundwater Monitoring Well Water Elevations

Stewart Creek Elevations										
Surv	ov Point		Measurement	El	evation					
Suiv	eyPoint		Date	(	ft msl)					
Transect 1										
Top of North Bank			3/7/2016		628 74					
Toe of North Bank			3/7/2016		624 79					
Creek Centerline			3/7/2016		622 79					
Too of South Bank			2/7/2016		624.27					
Top of South Bank			2/7/2010		624.00					
			3/7/2010	034.09						
Top of North Dopk			2/7/2016		(27.07					
Top of North Bank			3/7/2010		027.97					
Toe of North Bank			3/7/2016		523.57					
Toe of South Bank			3/7/2016		524.04					
Top of South Bank			3/7/2016		530.52					
Transect 3										
Top of North Bank			3/7/2016	(	528.20					
Toe of North Bank			3/7/2016		522.70					
Toe of South Bank			3/7/2016		522.88					
Top of South Bank			3/7/2016		528.18					
	TOC	Screen		Depth to	Groundwater					
Well ID	Elevation	Interval	Measurement	Groupdwater	Elevation					
Wente			<b>.</b>							
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)					
MW-26	631.93	5-15	3/11/2013	9.98	621.95					
(Groundwater)			4/5/2013	9.52	622.41					
			4/29/2013	9.21	622.72					
			1/21/2014	5.80	626.13					
			7/29/2014	5.79	626.14					
			9/23/2014	8.9	623.03					
			6/12/2015	5.32	626.61					
			9/8/2015	5.72	626.21					
			12/17/2015	5.32	626.61					
			2/29/2016	5.41	626.52					
			6/1/2016	5 47	626.46					
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43					
(Groundwater)	000.01	1.0 11.0	4/5/2013	6.96	626.10					
(croundwater)			4/29/2013	6.56	626.00					
			1/21/2013	6.50	626.93					
			7/29/2014	6.62	626.07					
			0/22/2014	6.57	627.47					
			9/23/2014	0.04 E 01	629.20					
			0/12/2015	0.ZT	627.16					
			7/0/2015 12/17/2015	0.30	627.10					
			2/20/2014	0.07 5.70	627.04					
			2/29/2010	5.79	627.72					
	(0) 71	0.00	0/1/2010	5.69	027.82					
IVIVV-31	030.71	8-23	5/13/2013	10.58	626.13					
(Groundwater)			1/21/2014	10.87	625.84					
			//29/2014	10.81	625.90					
			9/23/2014	11.32	625.39					
			6/12/2015	9.61	627.10					
			9/8/2015	10.53	626.18					
			12/17/2015	9.42	627.29					
			2/29/2016	9.78	626.93					
			6/1/2016	9.82	626.89					
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80					
(Perched)			7/29/2014	4.59	626.37					
			9/23/2014	4.59	626.37					
			6/12/2015	3.79	627.17					
			9/8/2015	R	R					
			2/29/2016	3.57	627.39					
			6/1/2016	3.62	627.34					
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50					
(Perched)			7/29/2014	2 14	630.45					
(			9/23/2014	1 55	631.04					
			12/17/2015	1 21	631.38					
			2/20/2013	1.21	631 52					
			6/1/2010	1.07	631 50					
			0/1/2010	1.07	001.00					

Table 2 Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
Notes:				F	Prepared by: BEF 11/08/16
1. bgs - below grour	nd surface.				Checked by: KK 11/08/16
2 mal above mean	and lovel			D,	winned by FMD 01/02/17

Notes:

2. msl - above mean sea level.

3. btoc - below top of casing.

4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

Reviewed by: FMB 01/02/17

# Table 3 French Drain Water Analytical Data

	Samp	ole ID	Samp	ole ID	Samp	ole ID	
	FD042	216-01	FD042	216-02	FD042	216-03	
	Date Co	Date Collected		ollected	Date Collected		
	4/22/20	16 9:55	4/22/20	16 9:55	4/22/20	16 9:55	
Metals							
Parameter:	Result	Units	Result	Units	Result	Units	
Antimony	NA	mg/L	NA	mg/L	NA	mg/L	
Arsenic	NA	mg/L	0.005	mg/L	NA	mg/L	
Barium	NA	mg/L	0.042	mg/L	NA	mg/L	
Cadmium	NA	mg/L	0.0011	mg/L	NA	mg/L	
Chromium	NA	mg/L	0.015	mg/L	NA	mg/L	
Copper	NA	mg/L	0.0188	mg/L	NA	mg/L	
Iron	NA	mg/L	ND	mg/L	NA	mg/L	
Lead	NA	mg/L	0.089	mg/L	NA	mg/L	
Manganese	NA	mg/L	0.003	mg/L	NA	mg/L	
Nickel	NA	mg/L	ND	mg/L	NA	mg/L	
Selenium	NA	mg/L	0.0195	mg/L	NA	mg/L	
Silver	NA	mg/L	ND	mg/L	NA	mg/L	
Zinc	NA	mg/L	0.014	mg/L	NA	mg/L	
Mercury	NA	mg/L	ND	mg/L	NA	mg/L	
General Chemistry							
Parameter:	Result	Units	Result	Units	Result	Units	
Total Suspended Solids	NA	mg/L	NA	mg/L	ND	mg/L	
Total Dissolved Solids	1,200	mg/L	NA	mg/L	NA	mg/L	

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

Prepared by: BEF 11/07/16 Checked by: KK 11/07/16 Reviewed by: FMB 01/02/17



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Order ID: 16040629 Date: 4/28/2016 Page 5 of 10

Exide Technologies Eduardo Salazar

# **Analytical Report**

# Project Name: General Permit Outfalls

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD042216-01 16040629-004 4/22/2016							
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								- iugo
Total Dissolved Solids	20.0	25	1200	) mg/L	04/25/16 10:30	SM-2540-C	JD.T.	





Order ID: 16040630 Date: 4/28/2016 Page 5 of 10

Exide Technologies Eduardo Salazar

# **Analytical Report**

Project Name: General Permit Outfalls

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD042 16040 4/22/2	<b>2216-03</b> 0630-004 2016		Sam	Matrix: L ple Collected: 4	:55		
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Suspended Solids	5.0	5	NE	) mg/L	04/25/16 09:15	SM-2540-D	JD.T.	





Order ID: 16040628 Date: 4/28/2016 Page 5 of 12

Exide Technologies Eduardo Salazar

# **Analytical Report**

# Project Name: General Permit Outfalls

Customer Sample ID:	FD042	2216-02						
Oxidor Sample ID:	16040	628-004			Matrix: L	iauid		
Sample Received:	4/22/2	016						
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 04/25/16 at	09:07							
Arsenic	0.003	0.005	0.005	mg/L	04/27/16 12:47	200.8	M.A.	
Barium	0.003	0.005	0.042	mg/L	04/27/16 12:47	200.8	M.A.	
Cadmium	0.0005	0.001	0.0011	mg/L	04/27/16 12:47	200.8	M.A.	
Chromium	0.003	0.005	0.015	mg/L	04/27/16 12:47	200.8	M.A.	
Copper	0.0025	0.005	0.0188	mg/L	04/27/16 12:47	200.8	M.A.	
Iron	0.25	0.5	ND	mg/L	04/27/16 12:47	200.8	M.A.	
Lead	0.003	0.005	0.089	mg/L	04/27/16 12:47	200.8	M.A.	
Manganese	0.001	0.002	0.003	mg/L	04/27/16 12:47	200.8	MA	
Nickel	0.003	0.005	ND	mg/L	04/27/16 12:47	200.8	M.A.	
Selenium	0.0025	0.005	0.0195	mg/L	04/27/16 12:47	200.8	M.A.	
Silver	0.001	0.001	ND	mg/L	04/27/16 12:47	200.8	M.A.	
Zinc	0.003	0.005	0.014	mg/L	04/27/16 12:47	200.8	MA	
Digested by method 245.1 on 04/25/16 at	09:20			J				
Mercury	0.0001	0.0002	ND	mg/L	04/25/16 14:26	245.1	D.W.	



January 24, 2017

Brad Weaver Exide Technologies 7471 South 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2016 THIRD QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 South 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the third quarter of 2016. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment and offsite disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the third quarter of 2016 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.

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- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the third quarter 2016 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the third quarter of 2016.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/s20151107/e20161107/myear).

### 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the third quarter of 2016. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary much from previous readings in 2016 with most wells having a slight decrease in water elevation.

### 3.3 Floodwall Seepage

At the time of the wall inspection on September 8, 2016 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on September 8, 2016. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the third quarter of 2016. Analytical results from these samples are included in Table 3 and Attachment A.

### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the third quarter of 2016 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.



## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly status update.

Sincerely,

**Brett Forthaus** 

#### **GOLDER ASSOCIATES INC.**

Butt Forthe

**Environmental Engineer** 

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

LBoot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 



Jul-16			Aug-16			Sep-16		
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
7,033		2.93	13,378		3.51	10,457		2.31
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Friday, July 01, 2016	47	0.00	Monday, August 01, 2016	280	0.00	Thursday, September 01, 2016	51	0.57
Saturday, July 02, 2016	NR	0.00	Tuesday, August 02, 2016	46	0.00	Friday, September 02, 2016	134	0.00
Sunday, July 03, 2016	NR	0.00	Wednesday, August 03, 2016	NR	0.00	Saturday, September 03, 2016	NR	0.00
Monday, July 04, 2016	NR	0.60	Thursday, August 04, 2016	NR	0.00	Sunday, September 04, 2016	NR	0.00
Tuesday, July 05, 2016	NR	0.00	Friday, August 05, 2016	154	0.00	Monday, September 05, 2016	NR	0.00
Wednesday, July 06, 2016	1,213	0.00	Saturday, August 06, 2016	NR	0.00	Tuesday, September 06, 2016	NR	0.00
Thursday, July 07, 2016	108	0.00	Sunday, August 07, 2016	NR	0.00	Wednesday, September 07, 2016	621	0.00
Friday, July 08, 2016	59	0.00	Monday, August 08, 2016	145	0.00	Thursday, September 08, 2016	47	0.00
Saturday, July 09, 2016	NR	0.55	Tuesday, August 09, 2016	49	0.00	Friday, September 09, 2016	83	0.00
Sunday, July 10, 2016	NR	0.00	Wednesday, August 10, 2016	41	0.00	Saturday, September 10, 2016	NR	0.47
Monday, July 11, 2016	605	0.00	Thursday, August 11, 2016	38	0.00	Sunday, September 11, 2016	NR	0.00
Tuesday, July 12, 2016	91	0.00	Friday, August 12, 2016	40	0.00	Monday, September 12, 2016	988	0.00
Wednesday, July 13, 2016	503	0.00	Saturday, August 13, 2016	NR	0.00	Tuesday, September 13, 2016	117	0.00
Thursday, July 14, 2016	106	0.00	Sunday, August 14, 2016	NR	0.00	Wednesday, September 14, 2016	39	0.00
Friday, July 15, 2016	282	0.69	Monday, August 15, 2016	110	0.05	Thursday, September 15, 2016	68	0.00
Saturday, July 16, 2016	NR	0.00	Tuesday, August 16, 2016	119	0.00	Friday, September 16, 2016	49	0.00
Sunday, July 17, 2016	NR	0.00	Wednesday, August 17, 2016	50	0.00	Saturday, September 17, 2016	NR	0.00
Monday, July 18, 2016	1,009	0.00	Thursday, August 18, 2016	536	0.26	Sunday, September 18, 2016	NR	0.06
Tuesday, July 19, 2016	102	0.00	Friday, August 19, 2016	410	1.89	Monday, September 19, 2016	241	0.00
Wednesday, July 20, 2016	96	0.00	Saturday, August 20, 2016	NR	1.07	Tuesday, September 20, 2016	449	0.00
Thursday, July 21, 2016	68	0.00	Sunday, August 21, 2016	NR	0.00	Wednesday, September 21, 2016	328	0.00
Friday, July 22, 2016	52	0.00	Monday, August 22, 2016	6,831	0.09	Thursday, September 22, 2016	339	0.00
Saturday, July 23, 2016	NR	0.00	Tuesday, August 23, 2016	NR	0.00	Friday, September 23, 2016	251	0.00
Sunday, July 24, 2016	NR	0.00	Wednesday, August 24, 2016	2,579	0.00	Saturday, September 24, 2016	NR	0.26
Monday, July 25, 2016	NR	0.86	Thursday, August 25, 2016	166	0.00	Sunday, September 25, 2016	NR	0.66
Tuesday, July 26, 2016	306	0.00	Friday, August 26, 2016	74	0.07	Monday, September 26, 2016	743	0.29
Wednesday, July 27, 2016	46	0.22	Saturday, August 27, 2016	NR	0.00	Tuesday, September 27, 2016	1,305	0.00
Thursday, July 28, 2016	2,177	0.00	Sunday, August 28, 2016	NR	0.00	Wednesday, September 28, 2016	2,485	0.00
Friday, July 29, 2016	163	0.01	Monday, August 29, 2016	894	0.08	Thursday, September 29, 2016	2,064	0.00
Saturday, July 30, 2016	NR	0.00	Tuesday, August 30, 2016	654	0.00	Friday, September 30, 2016	55	0.00
Sunday, July 31, 2016	NR	0.00	Wednesday, August 31, 2016	162	0.00			

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20151107/e20161107/myear Daily flow volumes provided by Exide. NR - Not Recorded Prepared by: BEF 11/07/16 Checked by: KK 11/09/16 Reviewed by: FMB 01/02/17 
 Table 2

 Perched and Groundwater Monitoring Well Water Elevations

Stewart Creek Elevations									
	au Daint		Measurement	El	evation				
Surv	ey Point		Date	(	ft msl)				
Transect 1									
Top of North Bank			3/7/2016	(	528.74				
Toe of North Bank			3/7/2016	624.79					
Creek Centerline			3/7/2016	(	522.79				
Toe of South Bank			3/7/2016	624.27					
Top of South Ballk			3/7/2010	(	554.09				
Top of North Bank			3/7/2016		527.97				
Toe of North Bank			3/7/2016		523.57				
Toe of South Bank			3/7/2016		524.04				
Top of South Bank			3/7/2016	(	530.52				
Transect 3									
Top of North Bank			3/7/2016		528.20				
Toe of North Bank			3/7/2016		522.70				
Toe of South Bank			3/7/2016	(	522.88 400.10				
TOP OF SOULT BALK			3/1/2010		020.10				
	TOC	Screen	Measurement	Depth to	Groundwater				
weii id	Elevation	Interval		Groundwater	Elevation				
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)				
MW-26	631.93	5-15	3/11/2013	9.98	621.95				
(Groundwater)			4/5/2013	9.52	622.41				
			4/29/2013	5.21	626.12				
			7/29/2014	5 79	626.13				
			9/23/2014	8.9	623.03				
			6/12/2015	5.32	626.61				
			9/8/2015	5.72	626.21				
			12/17/2015	5.32	626.61				
			2/29/2016	5.41	626.52				
			6/1/2016	5.47	626.46				
	(00.54		9/8/2016	5.51	626.42				
MW-29 (Croundwater)	633.51	4.5-14.5	3/11/2013	13.08	620.43				
(Groundwater)			4/5/2013	6.96	020.00 626.05				
			1/21/2013	6.50	626.89				
			7/29/2014	6.57	626.94				
			9/23/2014	6.04	627.47				
			6/12/2015	5.21	628.30				
			9/8/2015	6.35	627.16				
			12/17/2015	5.67	627.84				
			2/29/2016	5.79	627.72				
			6/1/2016	5.69	627.82				
M\\\/ 21	636 71	8 23	5/12/2012	5.67	626.12				
(Groundwater)	030.71	0-23	1/21/2014	10.56	625.84				
(oroundwater)			7/29/2014	10.07	625.90				
			9/23/2014	11.32	625.39				
			6/12/2015	9.61	627.10				
			9/8/2015	10.53	626.18				
			12/17/2015	9.42	627.29				
			2/29/2016	9.78	626.93				
			6/1/2016	9.82	626.89 626.01				
M/M/ 20	620.06	255	9/8/2016	9.90	620.01				
(Perched)	030.90	2.0-0	7/29/2014	4.10	626.37				
(i cicilica)			9/23/2014	4.59	626.37				
			6/12/2015	3.79	627.17				
			9/8/2015	R	R				
			2/29/2016	3.57	627.39				
			6/1/2016	3.62	627.34				
			9/8/2016	3.83	627.13				
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50				
(Perchea)			//29/2014	2.14	630.45				
			7/23/2014 12/17/2015	1.55	031.04 631.29				
			2/1//2015 2/29/2016	1.21 1.07	631.52				
			6/1/2016	1.09	631.50				
			9/8/2016	1.07	631.52				

Table 2 Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Screen Elevation Interval		Measurement	Depth to Groundwater	Groundwater Elevation	
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)	
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52	
(Perched)			7/29/2014	4.45	628.38	
			9/23/2014	4.45	628.38	
			6/12/2015	3.42	629.41	
			12/17/2015	3.03	629.80	
			2/29/2016	1.95	630.88	
			6/1/2016	2.04	630.79	
			9/8/2016	2.59	630.24	
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY	
(Perched)			7/29/2014	DRY	DRY	
			9/23/2014	DRY	DRY	

6/12/2015

9/8/2015

12/17/2015

2/29/2016

6/1/2016

9/8/2016

1/21/2014

7/29/2014

9/23/2014

6/12/2015

9/8/2015

2/29/2016

6/1/2016

9/8/2016

4.97

DRY

4.10

3.86

3.99

4.13

5.21

5.47

5.08

5.50

4.17

5.23

5.30

5.41

Notes:

MW-46

(Groundwater)

1. bgs - below ground surface.

630.98

10-20

Prepared by: BEF 11/09/16 Checked by: KK 11/09/16

627.58

DRY

628.45

628.69

628.56

628.42

625.77

625.51

625.90

625.48 626.81

625.75

625.68

625.57

Reviewed by: FMB 01/02/17

2. msl - above mean sea level.
 3. btoc - below top of casing.

4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

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# Table 3 French Drain Water Analytical Data

	Samp	ole ID	Samp	ole ID	Samp	le ID	
	FD071	216-01	FD071	216-02	FD071	216-03	
	Date Collected		Date Collected		Date Collected		
	7/12/20	16 12:20	7/12/20	16 12:20	7/12/20 <sup>-</sup>	16 12:20	
Metals							
Parameter:	Result	Units	Result	Units	Result	Units	
Antimony	NA	mg/L	NA	mg/L	NA	mg/L	
Arsenic	NA	mg/L	0.007	mg/L	NA	mg/L	
Barium	NA	mg/L	0.070	mg/L	NA	mg/L	
Cadmium	NA	mg/L	0.0010	mg/L	NA	mg/L	
Chromium	NA	mg/L	0.015	mg/L	NA	mg/L	
Copper	NA	mg/L	0.0218	mg/L	NA	mg/L	
Iron	NA	mg/L	ND	mg/L	NA	mg/L	
Lead	NA	mg/L	0.065	mg/L	NA	mg/L	
Manganese	NA	mg/L	0.001	mg/L	NA	mg/L	
Nickel	NA	mg/L	ND	mg/L	NA	mg/L	
Selenium	NA	mg/L	0.0145	mg/L	NA	mg/L	
Silver	NA	mg/L	ND	mg/L	NA	mg/L	
Zinc	NA	mg/L	0.011	mg/L	NA	mg/L	
Mercury	NA	mg/L	ND	mg/L	NA	mg/L	
General Chemistry							
Parameter:	Result	Units	Result	Units	Result	Units	
Total Suspended Solids	NA	mg/L	NA	mg/L	ND	mg/L	
Total Dissolved Solids	1,340	mg/L	NA	mg/L	NA	mg/L	

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

3) mg/L - milligrams per liter

Prepared by: BEF 11/09/16 Checked by: KK 11/09/16 Reviewed by: FMB 01/02/17



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Order ID: 16070374 Date: 7/21/2016 Page 5 of 11

Exide Technologies Eduardo Salazar

# **Analytical Report**

### Project Name: Grab Samples from process

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD071 16070 7/13/2	1 <b>216-03</b> 0374-004 016		Sam	Matrix: Liquid Sample Collected: 7/12/2016 12:20				
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags	
General Chemistry									
Total Suspended Solids	5.0	5	NE	0 mg/L	07/18/16 15:05	SM-2540-D	K.E.L.	*	





Order ID: 16070375 Date: 7/21/2016 Page 5 of 11

Exide Technologies Eduardo Salazar

# **Analytical Report**

Project Name: Grab Samples from process

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD071 16070 7/13/2	1 <b>216-01</b> 375-004 016	Matrix: Liquid Sample Collected: 7/12/2016 12:20						
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags	
General Chemistry									
Total Dissolved Solids	20.0	25	1340	) mg/L	07/18/16 17:45	SM-2540-C	K.E.L.		





Order ID: 16070376 Date: 7/21/2016 Page 5 of 13

Exide Technologies Eduardo Salazar

# **Analytical Report**

Project Name: Grab Samples from process

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD071216-02 16070376-004 7/13/2016		Matrix: Liquid Sample Collected: 7/12/2016 12:20					
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 07/15/16 at	08:48							
Arsenic	0.003	0.005	0.007	mg/L	07/15/16 17:32	200.8	M.A.	
Barium	0.003	0.005	0.070	mg/L	07/15/16 17:32	200.8	M.A.	
Cadmium	0.0005	0.001	0.0010	mg/L	07/15/16 17:32	200.8	M.A.	
Chromium	0.003	0.005	0.015	mg/L	07/15/16 17:32	200.8	M.A.	
Copper	0.0025	0.005	0.0218	mg/L	07/15/16 17:32	200.8	M.A.	
Iron	0.25	0.5	ND	mg/L	07/15/16 17:32	200.8	M.A.	
Lead	0.003	0.005	0.065	mg/L	07/18/16 17:27	200.8	M.A.	
Manganese	0.001	0.002	0.001	mg/L	07/15/16 17:32	200.8	M.A.	J-5
Nickel	0.003	0.005	ND	mg/L	07/15/16 17:32	200.8	M.A.	
Selenium	0.0025	0.005	0.0145	mg/L	07/15/16 17:32	200.8	M.A.	
Silver	0.001	0.001	ND	mg/L	07/15/16 17:32	200.8	M.A.	
Zinc	0.003	0.005	0.011	mg/L	07/15/16 17:32	200.8	M.A.	
Digested by method 245.1 on 07/15/16 at	08:50			-				
Mercury	0.0001	0.0002	ND	mg/L	07/15/16 15:24	245.1	D.W.	



February 17, 2017

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

### RE: 2016 FOURTH QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the fourth quarter of 2016. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to the wastewater treatment system for treatment and offsite disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the fourth quarter of 2016 included the following:

Daily (week day) Inspections and Maintenance – Inspection of the flowmeter and recording flow rate and totalizer reading. There were no readings collected Monday December 19<sup>th</sup> through Friday December 30<sup>th</sup> due to a scheduled holiday period at the Site.

Golder Associates Inc. 820 S. Main Street, Suite 100 St. Charles, MO 63301 USA Tel: (636) 724-9191 Fax: (636) 724-9323 www.golder.com



Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the fourth quarter 2016 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the fourth quarter of 2016.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

# 3.0 OBSERVATIONS AND RESULTS

### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/tdata/s20160201/e20170201/myear).

## **3.2 Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the fourth quarter of 2016. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary much from previous readings in 2016 with some wells having a slight decrease in water level while others had a slight increase.

## 3.3 Floodwall Seepage

At the time of the wall inspection on December 2, 2016 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on December 2, 2016. As such, no samples of white crystalline material were collected or analyzed. A white powdery material was observed on the ground between the Stewart Creek and the wall during the inspection. After further investigation and confirmation with Site personnel, it was determined that the powdery material was not related to seepage from the flood wall and therefore no samples of the material were collected.


### 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the fourth quarter of 2016. Analytical results from these samples are included in Table 3 and Attachment A.

# 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the fourth quarter of 2016 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

### 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

#### GOLDER ASSOCIATES INC.

Butt Fortus

Brett Forthaus Environmental Engineer

LKoot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

- Table 1: French Drain Daily Flow Volumes
- Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer



# Table 1French Drain Daily Flow Volumes

Oct-16			Nov-16			Dec-16		
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
7,864		2.81	14,870		3.01	4,237		0.77
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Saturday, October 01, 2016	NR	0.00	Tuesday, November 01, 2016	68	0.00	Thursday, December 01, 2016	90	0.00
Sunday, October 02, 2016	NR	0.00	Wednesday, November 02, 2016	19	0.00	Friday, December 02, 2016	72	0.03
Monday, October 03, 2016	12	0.00	Thursday, November 03, 2016	196	1.09	Saturday, December 03, 2016	NR	0.51
Tuesday, October 04, 2016	8	0.00	Friday, November 04, 2016	339	0.01	Sunday, December 04, 2016	NR	0.01
Wednesday, October 05, 2016	23	0.00	Saturday, November 05, 2016	NR	0.03	Monday, December 05, 2016	2,059	0.11
Thursday, October 06, 2016	75	0.00	Sunday, November 06, 2016	NR	0.23	Tuesday, December 06, 2016	872	0.01
Friday, October 07, 2016	1,598	1.73	Monday, November 07, 2016	156	1.28	Wednesday, December 07, 2016	333	0.00
Saturday, October 08, 2016	NR	0.00	Tuesday, November 08, 2016	4,537	0.06	Thursday, December 08, 2016	NR	0.00
Sunday, October 09, 2016	NR	0.00	Wednesday, November 09, 2016	2,827	0.01	Friday, December 09, 2016	NR	0.00
Monday, October 10, 2016	14	0.00	Thursday, November 10, 2016	2,429	0.00	Saturday, December 10, 2016	NR	0.00
Tuesday, October 11, 2016	3,481	0.00	Friday, November 11, 2016	550	0.00	Sunday, December 11, 2016	NR	0.00
Wednesday, October 12, 2016	278	0.00	Saturday, November 12, 2016	NR	0.00	Monday, December 12, 2016	558	0.00
Thursday, October 13, 2016	153	0.00	Sunday, November 13, 2016	NR	0.00	Tuesday, December 13, 2016	74	0.00
Friday, October 14, 2016	87	0.00	Monday, November 14, 2016	917	0.00	Wednesday, December 14, 2016	78	0.00
Saturday, October 15, 2016	NR	0.00	Tuesday, November 15, 2016	178	0.00	Thursday, December 15, 2016	46	0.01
Sunday, October 16, 2016	NR	0.00	Wednesday, November 16, 2016	150	0.00	Friday, December 16, 2016	55	0.00
Monday, October 17, 2016	219	0.00	Thursday, November 17, 2016	120	0.00	Saturday, December 17, 2016	NR	0.00
Tuesday, October 18, 2016	74	0.00	Friday, November 18, 2016	319	0.02	Sunday, December 18, 2016	NR	0.00
Wednesday, October 19, 2016	62	0.00	Saturday, November 19, 2016	NR	0.00	Monday, December 19, 2016	NR	0.00
Thursday, October 20, 2016	642	1.07	Sunday, November 20, 2016	NR	0.00	Tuesday, December 20, 2016	NR	0.00
Friday, October 21, 2016	374	0.00	Monday, November 21, 2016	361	0.00	Wednesday, December 21, 2016	NR	0.00
Saturday, October 22, 2016	NR	0.00	Tuesday, November 22, 2016	70	0.07	Thursday, December 22, 2016	NR	0.00
Sunday, October 23, 2016	NR	0.00	Wednesday, November 23, 2016	309	0.00	Friday, December 23, 2016	NR	0.05
Monday, October 24, 2016	260	0.00	Thursday, November 24, 2016	NR	0.00	Saturday, December 24, 2016	NR	0.04
Tuesday, October 25, 2016	314	0.01	Friday, November 25, 2016	NR	0.00	Sunday, December 25, 2016	NR	0.00
Wednesday, October 26, 2016	61	0.00	Saturday, November 26, 2016	NR	0.00	Monday, December 26, 2016	NR	0.00
Thursday, October 27, 2016	19	0.00	Sunday, November 27, 2016	NR	0.00	Tuesday, December 27, 2016	NR	0.00
Friday, October 28, 2016	24	0.00	Monday, November 28, 2016	929	0.21	Wednesday, December 28, 2016	NR	0.00
Saturday, October 29, 2016	NR	0.00	Tuesday, November 29, 2016	264	0.00	Thursday, December 29, 2016	NR	0.00
Sunday, October 30, 2016	NR	0.00	Wednesday, November 30, 2016	132	0.00	Friday, December 30, 2016	NR	0.00
Monday, October 31, 2016	86	0.00				Saturday, December 31, 2016	NR	0.00

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/tdata/s20160201/e20170201/myear Daily flow volumes provided by Exide. NR - Not Recorded Prepared by: BEF 02/01/17 Checked by: KK 02/03/17 Reviewed by: AMF/FMB 02/09/17 
 Table 2

 Perched and Groundwater Monitoring Well Water Elevations

Survey Point         Measurement Date         Elevation (ft msi)           Transect 1 Top of North Bank         37/72016         628.74           Top of North Bank         37/72016         624.74           Toe of North Bank         37/72016         624.79           Toe of South Bank         37/72016         624.27           Top of South Bank         37/72016         622.79           Toe of North Bank         37/72016         622.97           Toe of North Bank         37/72016         622.97           Toe of South Bank         37/72016         630.92           Transect 2         37/72016         630.92           Top of South Bank         37/72016         622.70           Toe of South Bank         37/72016         622.70           Toe of South Bank         37/72016         622.18           Top of South Bank         37/72016         622.18           Well ID         Elevation (ft tory)         Date         (ft tory)           WW-26 (Groundwater)         631.93         5-15         3/1/12013         9.98         621.95           Well ID         Elevation (ft tory)         Date         Groundwater         Elevation (ft tory)         Elevation (ft tory)           W/-29 (Groundwater)			Stev	vart Creek Elevat	tions	
Tansact 1         Close	Surv	ey Point		Measurement Date	El	evation ft msl)
Top of North Bank         37/2016         628.74           Top of North Bank         37/2016         628.74           Top of South Bank         37/2016         628.79           Top of South Bank         37/2016         624.77           Top of South Bank         37/2016         624.77           Top of South Bank         37/2016         629.77           Top of North Bank         37/2016         629.77           Top of North Bank         37/2016         629.77           Top of North Bank         37/2016         628.20           Top of North Bank         37/2016         628.20           Top of North Bank         37/2016         622.20           Top of North Bank         37/2016         622.20           Top of North Bank         37/2016         622.20           Top of South Bank         37/2016         622.21           State         State         State         State           (Groundwater)         631.93         5-15         37/2016         5.32         626.13	Transect 1			Date		
Origin Grant Bank         37/2016         6.24 / 19           Greek Centerline         37/2016         6.22 / 19           Top of South Bank         37/2016         6.22 / 19           Top of South Bank         37/2016         6.24 / 27           Top of South Bank         37/2016         6.24 / 27           Top of North Bank         37/2016         6.22 / 97           Toe of North Bank         37/2016         6.22 / 97           Toe of North Bank         37/2016         6.22 / 97           Toe of South Bank         37/2016         6.22 / 97           Toe of North Bank         37/2016         6.22 / 97           Toe of North Bank         37/2016         6.22 / 97           Toe of North Bank         37/2016         6.22 / 10           Toe of South Bank         37/2016         6.22 / 10           Toe of South Bank         37/2016         6.22 / 11           Top of South Bank         37/2016         6.22 / 12           Groundwater         (ft mst)         (ft mst)         17/2013         9.98         6.21.95           WW-26         (ft mst)         (ft mst)         37/2014         5.79         6.26 / 14           Groundwater         (ft mst)         (ft mst)         17/2014	Top of North Bank			3/7/2016		528 74
Creek Centerline         37/2016         622.219           Top of South Bank         37/2016         624.27           Top of South Bank         37/2016         624.27           Tapsof North Bank         37/2016         629.57           Top of South Bank         37/2016         629.57           Top of North Bank         37/2016         620.57           Toe of South Bank         37/2016         620.57           Toe of South Bank         37/2016         630.52           Tamsetd 3         37/2016         628.26           Toe of South Bank         37/2016         622.20           Toe of South Bank         37/2016         622.28           Toe of South Bank         37/2016         622.28           Toe of South Bank         37/2016         622.28           Top of South Bank         37/2016         622.28           Well ID         Elevation         Interval         37/2016         622.71           Kirbon         110001         Streement         Measurement         Groundwater           Groundwater         631.93         5-15         37/12016         5.32         622.11           V/2/2014         5.99         622.13         729/2014         5.79         622.1	Toe of North Bank			3/7/2016		524 79
De of South Bank         37/2016         60.24 27           Top of South Bank         3/7/2016         634.09           Tarsset 2         3/7/2016         634.09           Top of North Bank         3/7/2016         627.97           Top of North Bank         3/7/2016         633.51           Top of South Bank         3/7/2016         630.52           Transect 3         3/7/2016         628.20           Top of North Bank         3/7/2016         622.20           Toe of South Bank         3/7/2016         622.28           Top of North Bank         3/7/2016         622.28           Top of South Bank         3/7/2016         622.28           Top of South Bank         3/7/2016         622.28           Top of South Bank         3/7/2016         622.19           Vell I D         Elevation         Interval         Measurement           (Groundwater)         631.93         5-15         3/11/2013         9.98         621.19           MW-26         633.51         4.5-14.5         3/11/2013         9.52         622.41           Groundwater)         633.51         4.5-14.5         3/11/2013         9.54         626.51           1/2/2/2015         5.32         626	Creek Centerline			3/7/2016		527.77
Dec South Bank         3/7/2016         00-121           Transect 2	Too of South Bank			3/7/2016		522.17
Unit of the sound bala k         J/7/2016         Corr J           Top of North Bank         3/7/2016         6.27 97           Toe of North Bank         3/7/2016         6.23 57           Toe of South Bank         3/7/2016         6.23 57           Top of South Bank         3/7/2016         6.22 00           Transect 3         3/7/2016         6.22 00           Top of North Bank         3/7/2016         6.22 00           Toe of North Bank         3/7/2016         6.22 88           Top of South Bank         3/7/2016         6.22 88           Top of South Bank         3/7/2016         6.22 81           Top of South Bank         3/7/2016         6.22 81           Well ID         Elevation         Interval         Measurement           WW-26         631 93         5-15         3/11/2013         9.58         6622 11           (Groundwater)         6/31 93         5-15         3/11/2013         9.52         662 13           1/2/2014         5.90         6/23 03         6/12/2015         5.72         6/26 13           1/2/2015         5.72         6/26 13         2/2/2/2014         5.9         6/26 52           1/2/2015         5.71         6/26 42         2/2/2/	Top of South Bank			3/7/2016		524.27
Top of Nurth Bank         3/7/2016         6.27 97           Tee of North Bank         3/7/2016         6.23 57           Tee of South Bank         3/7/2016         6.23 57           Top of South Bank         3/7/2016         6.24 04           Top of South Bank         3/7/2016         6.22 20           Transect 3         3/7/2016         6.22 20           Toe of North Bank         3/7/2016         6.22 20           Toe of South Bank         3/7/2016         6.22 28           Top of South Bank         3/7/2016         6.22 88           Top of South Bank         3/7/2016         6.28 18           Top of South Bank         3/7/2016         6.28 18           Well ID         Elevation         Interval         Measurement         Groundwater           (ft mst)         (ft hey)         Date         Groundwater         Groundwater           (Groundwater)         631.93         5-15         3/11/2013         9.22         622.41           MW-26         633.51         4.5-14.5         3/17/2016         5.65         626.22           Groundwater)         633.51         4.5-14.5         3/11/2013         6.96         626.55           6/1/2016         5.61         626.42	Transect 2			3/1/2010	,	554.07
Order of North Bank         27/72016         623 67           Toe of South Bank         3/7/2016         624 64           Top of South Bank         3/7/2016         630 52           Transect 3         3/7/2016         622 70           Toe of North Bank         3/7/2016         622 20           Toe of North Bank         3/7/2016         622 28           Toe of South Bank         3/7/2016         622 28           Top of South Bank         3/7/2016         622 28           Top of South Bank         3/7/2016         622 18           Well ID         Elevation (ft ms)         Measurement (ft bgs)         Opph to Date         Groundwater Groundwater           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         621.95           MW-26 (Groundwater)         633.51         4.5-14.5         3/11/2013         9.52         622.41           9/8/2/2015         5.32         626.61         12/27/2014         5.80         626.13           9/8/2/2015         5.12         626.14         9/3/2016         5.51         626.22           0/11/2/2015         5.32         626.61         12/27/2016         5.41         626.52           0/11/2/2015         5.32 <td< td=""><td>Top of North Bank</td><td></td><td></td><td>3/7/2016</td><td></td><td>527 97</td></td<>	Top of North Bank			3/7/2016		527 97
Toe of South Bank         3/7/2016         624 04           Top of South Bank         3/7/2016         630 52           Transect 3         3/7/2016         628 20           Toe of North Bank         3/7/2016         622 28           Toe of North Bank         3/7/2016         622 28           Toe of South Bank         3/7/2016         622 88           Top of South Bank         3/7/2016         628 18           Well ID         Elevation         Interval         Groundwater         Groundwater           (ft mst)         3/7/2016         628 18         Groundwater         Groundwater           (groundwater)         6 31 93         5-15         3/11/2013         9.98         621 95           (groundwater)         6 31 93         5-15         3/11/2014         5.79         626 13           1/2/2/2014         5.79         626 14         9/2/2016         5.41         626 62           MW-29         633.51         4.5-14.5         3/11/2013         6.96         626 63           (Groundwater)         4/5/2013         6.96         626 64         2/2/9/2016         5.41         626 62           MW-29         633.51         4.5-14.5         3/11/2013         6.96         626 64	Toe of North Bank			3/7/2016		523.57
Top of South Bank         3/7/2016         630.52           Transet 3	Toe of South Bank			3/7/2016		524.04
Transet 3         0.1000         0.0000           Top of North Bank         3/7/2016         628.20           Toe of North Bank         3/7/2016         622.70           Toe of South Bank         3/7/2016         622.88           Top of South Bank         3/7/2016         628.18           Well ID         TOC         Screen (t mst)         Measurement (t mst)         Depth to Groundwater         Condwater Elevation           MW-26 (Groundwater)         631.93         5-15         3/1/1/2013         9.98         621.95           MW-26 (Groundwater)         631.93         5-15         3/1/1/2013         9.92         622.21           MW-26 (Groundwater)         631.93         5-15         3/1/1/2013         9.92         623.03           6/1/2/2015         5.72         262.61         1/9/2/2014         5.79         626.13           12/2/2016         5.41         626.52         6/1/2/2015         5.72         626.21           9/8/2016         5.51         626.42         2/2/2/2016         5.41         626.52           6/1/2016         5.47         626.42         2/2/2/2016         5.47         626.42           12/2/2016         5.65         626.28         7/1/2/2015         5.51	Top of South Bank			3/7/2016		521.01 530 52
Top of North Bank         3/7/2016         628 20           Toe of North Bank         3/7/2016         622 70           Toe of South Bank         3/7/2016         622 70           Top of South Bank         3/7/2016         622 88           Top of South Bank         3/7/2016         628 18           Well ID         Elevation         Interval         Measurement         Groundwater         Elevation           MW-26         631.93         5-15         3/1/12013         9.98         621.95           Groundwater)         631.93         5-15         3/1/2016         5.82         622.41           MW-26         631.93         5-15         3/1/2014         5.79         626.13           Groundwater)         6/12/2014         5.79         626.61         3/1/12/13           9/8/2015         5.32         626.61         3/1/12/13         636.61           9/8/2016         5.51         626.22         12/2/2016         5.41         626.23           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           Groundwater)         633.51         4.5-14.5         3/11/2013         13.08         626.55           1/21/2014         6.62	Transect 3			0/1/2010		500.02
Toe of North Bank         37//2016         622.20           Top of South Bank         37//2016         622.88           Top of South Bank         37//2016         628.18           Well ID         Toc         Screen (ft mst)         Measurement (ft mst)         Depth to Groundwater         Groundwater Elevation           MW-26 (Groundwater)         631.93         5-15         3/1/1/2013         9.98         621.95           MW-26 (Groundwater)         631.93         5-15         3/1/1/2013         9.98         622.72           1/2/2014         5.80         262.613         7/29/2014         5.99         626.13           7/29/2014         5.99         626.14         9/2/2015         5.52         262.61           9/2/2015         5.12         626.61         9/8/2015         5.11         626.62           0/1/2015         5.41         626.52         626.42         2/2/9/2016         5.61         626.42           0/1/2016         5.61         626.42         266.61         9/8/2015         5.51         626.42           0/1/20101         5.65         626.95         7/2/9/2014         6.56         626.95           0/2/2013         6.56         626.95         7/2/9/2014         6.57	Top of North Bank			3/7/2016	(	528.20
Toe of South Bank         37//2016         622.88           Top of South Bank         37//2016         628.18           Well ID         Groundwater Elevation           MW-26 (Groundwater)         631.93         5-15         Measurement 4/5/2013         Depth to Groundwater         Groundwater Elevation           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         621.95           4/5/2013         9.21         622.41         7/29/2014         5.80         626.13           7/29/2014         5.90         623.03         6/12/2015         5.32         626.61           9/8/2016         5.41         626.52         6/12/2015         5.32         626.61           9/8/2016         5.41         626.52         6/1/2016         5.41         626.52           6/1/2016         5.41         626.52         6/1/2016         5.41         626.62           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           Groundwater)         633.51         4.5-14.5         4/12/2013         6.56         626.59           12/2/2016         5.67         627.72         6/1/2014         6.657         627.74	Toe of North Bank			3/7/2016		522.70
Top of South Bank         3/7/2016         628.18           Well ID         TOC Elevation (ft msl)         Screen (ft bgs)         Measurement Date         Depth to Groundwater         Groundwater           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         622.195           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.52         622.41           4//29/2013         9.21         622.72         622.12         1/21/2014         5.80         626.13           7/29/2014         5.99         626.13         7/29/2014         5.99         626.61           9/23/2014         8.9         622.03         6/12/2015         5.72         626.61           9/2/2015         5.72         626.61         2/2/9/2016         5.41         626.28           MW-29         633.51         4.5-14.5         3/11/2013         6.56         626.45           9/2/20	Toe of South Bank			3/7/2016		522.88
Well ID         TOC Elevation (ft msl)         Screen Interval (ft bgs)         Measurement Date         Depth to Groundwater (ft btoc)         Groundwater Elevation           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         621.95           1/2/2014         5.80         621.19         4/5/2013         9.21         622.72           1/2/1/2014         5.79         626.14         9/3/2015         5.32         626.14           9/2/2015         5.32         626.61         9/3/2015         5.32         626.61           9/3/2015         5.32         626.61         2/29/2016         5.41         626.42           0//2/2016         5.41         626.45         6/12/2015         5.32         626.61           1/2/17/2015         5.32         626.61         2/29/2016         5.65         626.42           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         633.51         4.5-14.5         3/11/2014         6.62         626.89           1/21/2014         6.56         626.42         9/3/2016         5.79         627.72           Groundwater)         636.71         8-23         5/13/2013         10.58 <td>Top of South Bank</td> <td></td> <td></td> <td>3/7/2016</td> <td></td> <td>528.18</td>	Top of South Bank			3/7/2016		528.18
Well ID         Elevation (ft ms)         Screen (ft bgs)         Measurement Date         Deptin to (ft bcc)         Deptin to (ft ms)           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         621.95           MW-26 (Groundwater)         5-15         3/11/2013         9.52         622.12           MW-26 (Groundwater)         5-15         3/11/2014         5.80         626.13           1/2/2014         5.79         626.14         9/23/2014         8.9         622.03           9/2/2015         5.72         626.61         9/2/2015         5.72         626.61           1/2/7/2015         5.72         626.64         2/2/9/2016         5.41         626.42           1/2/2016         5.41         626.42         1/2/2/2015         5.65         626.28           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.56         626.28         626.95           1/2/2/2014         6.61         6.62         626.89         7/29/2014         6.57         626.42           Groundwater)         9/8/2015         5.61         627.72         626.28         627.72           Gr		TOC	Concor		Danth ta	Creventhurster
Wein LD         Lievation         Interval (ft ms)         Off Usion (ft bloc)         Off Usion (ft ms)           MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.52         622.41           4/5/2013         9.21         622.72         12/17/2014         5.80         626.13           7/29/2014         5.79         626.14         9/23/2014         8.9         623.03           6/12/2015         5.32         626.61         9/9/23/2015         5.32         626.61           9/9/2016         5.41         622.52         6/12/2015         6.53         626.42           12/17/2015         5.32         626.61         9/9/2016         5.65         626.42           12/2/2016         5.65         626.42         12/2/2016         5.65         626.42           12/2/2016         5.65         626.42         12/2/2016         5.65         626.42           (Groundwater)         4.5-14.5         3/11/2013         13.08         620.43           MW-29         633.51         4.5-14.5         3/11/2014         6.62         626.89           7/29/2014         6.04         627.72         622.43         627.72         627.72           MW-31         636.71	Wall ID	TUC	Screen	Measurement	Depth to	Groundwater
(ft nst)         (ft lgs)         Date         (ft btoc)         (ft nst)           MW-26         631.93         5-15         3/1/1/2013         9.98         621.95           (Groundwater)         4/5/2013         9.21         622.72         622.41           1/2/1/2014         5.79         626.14         9         623.03           6/12/2015         5.32         626.61         9/9/2015         5.72         626.14           9/8/2015         5.72         626.61         9/9/2015         5.32         626.61           9/8/2016         5.41         626.52         6/1/2016         5.41         626.52           6/1/2016         5.65         626.42         12/2/9/2016         5.41         626.52           6/1/2016         5.65         626.28         12/2/2016         5.65         626.42           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         -         4/5/2013         6.96         622.85           1/21/2014         6.61         627         62.94         9/9/2015           1/21/2015         5.21         628.99         1/21/2014         6.825         627.47           6/	weirid	Elevation	Interval		Groundwater	Elevation
MW-26 (Groundwater)         631.93         5-15         3/11/2013         9.98         621.95           (Groundwater)         4/2/2013         9.21         622.72           1/21/2014         5.80         626.13           7/29/2014         8.9         623.03           6/12/2015         5.32         626.61           9/8/2015         5.72         626.21           12/17/2015         5.32         626.61           9/8/2016         5.41         626.52           6/1/2016         5.41         626.52           6/1/2016         5.41         626.42           12/17/2015         5.32         626.61           9/8/2016         5.51         626.42           12/2/2016         5.65         626.28           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.56         626.28         7           6/12/2015         5.21         628.30         9/8/2015         6.21         628.30           9/8/2015         6.35         627.16         7         626.94         7           9/8/2015         5.67         627.84         7         626		(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
(Groundwater)         4/5/2013         9.52         622.41           (Groundwater)         4/2/2013         9.21         622.72           1/21/2014         5.80         626.13           7/29/2013         5.79         626.14           9/2/2015         5.32         626.61           9/4/2015         5.32         626.61           9/4/2016         5.41         626.22           12/2/2016         5.41         626.42           12/2/2016         5.41         626.42           12/2/2016         5.65         626.42           12/2/2016         5.65         626.42           12/2/2016         5.65         626.42           12/2/2016         5.65         626.42           (Groundwater)         4/5/2013         6.96         626.55           (Groundwater)         4/5/2013         6.55         627.47           6/12/2015         5.21         628.49         7/29/2014           7/29/2014         6.04         627.47           6/12/2015         5.21         628.49           7/29/2016         5.67         627.82           9/8/2015         6.35         627.16           12/17/2015         5.67	MW-26	631.93	5-15	3/11/2013	9.98	621.95
W-29 (Groundwater)         633.51         4.5-14.5         3/11/2014         5.80         6626.13           W-29 (Groundwater)         633.51         4.5-14.5         3/11/2015         5.32         626.61           9/8/2015         5.72         626.61         9/8/2015         5.72         626.61           9/8/2015         5.32         626.61         2/29/2016         5.41         626.52           6/1/2016         5.41         626.42         626.42         661         2/29/2016         5.51         626.42           12/2/2016         5.65         626.42         626.55         626.55         626.55         626.55           6/1/2016         5.65         626.55         626.55         626.55         626.55           12/2/2016         5.65         626.55         626.55         626.94         9/23/2014         6.65         626.95           1/2/1/2015         5.21         628.30         9/8/2015         6.35         627.16           12/1/2014         6.65         627.17         6/1/2015         5.21         628.30           9/8/2015         5.67         627.84         627.17         6/1/2016         5.67         627.84           12/1/2016         5.67         6	(Groundwater)			4/5/2013	9.52	622.41
MW-29         633.51         4.5-14.5         5.79         626.13           Groundwater)         633.51         4.5-14.5         37/29/2014         8.9         623.03           MW-29         633.51         4.5-14.5         37/17/2015         5.32         626.61           12/17/2015         5.32         626.61         2/29/2016         5.41         626.52           6/1/2016         5.47         626.42         12/2/2016         5.65         626.28           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.56         626.58         6/12/2014         6.62         626.89           7/29/2014         6.62         626.89         7/29/2014         6.62         626.95           1/21/2015         5.21         628.30         9/8/2015         6.35         627.16           1/21/2015         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         626.13         121/2014         10.87         625.84           (Groundwater				4/29/2013	9.21	622.72
WW-29         633.51         4.5-14.5         9/23/2014         8.9         626.14           9/8/2015         5.32         626.61         9/8/2015         5.32         626.61           2/29/2016         5.41         626.52         66/12/2016         5.41         626.52           6/12/2016         5.41         626.52         66/12/2016         5.51         626.42           12/2/2016         5.65         626.42         12/2/2016         5.65         626.42           12/2/2016         5.65         626.42         12/2/2016         5.65         626.43           (Groundwater)         633.51         4.5-14.5         3/11/2013         6.96         626.55           4/29/2013         6.56         626.98         7/29/2014         6.62         626.89           7/29/2014         6.62         626.89         7/29/2014         6.35         627.16           12/17/2015         5.21         628.30         9/8/2016         5.67         627.84           2/29/2016         5.79         627.72         6/1/2016         5.67         627.84           2/29/2016         5.67         627.84         2/29/2016         5.67         627.84           2/29/2016         5.61				1/21/2014	5.80	626.13
MW-31         638.71         8-23         623.03           6/12/2015         5.32         626.61           9/8/2015         5.72         626.21           12/17/2015         5.32         626.61           2/29/2016         5.41         626.52           6/1/2016         5.47         626.42           12/2/2016         5.65         626.28           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.96         626.55         6/26.94           7/29/2014         6.56         626.94         626.94           9/8/2015         5.21         628.94         628.94           9/2/2014         6.04         627.47         6/12/2015           6/1/2015         5.21         628.94         9/2/2014         6.04           9/8/2015         6.35         627.16         12/17/2015         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         6.25         627.93           6/12/2015         9.61         6.25         <				7/29/2014	5.79	626.14
MW-31         636.71         8-23         5/12/2015         5.32         626.61           9/8/2015         5.72         626.21         12/17/2015         5.32         626.61           2/29/2016         5.41         626.52         626.42         626.42         626.42           12/17/2016         5.65         626.28         626.42         626.42         626.42           12/2/2016         5.65         626.28         626.43         626.43         626.43           (Groundwater)         4.5-14.5         3/11/2013         6.96         626.55         626.98           1/2/2/2014         6.56         626.94         9/23/2014         6.04         627.47           6/12/2015         5.21         628.94         9/23/2014         6.35         627.16           12/21/2016         5.79         627.72         6/1/2016         5.67         627.82           9/8/2015         5.67         627.84         2/29/2016         5.67         627.82           9/8/2016         5.67         627.82         627.18         12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13         625.84         12/2/2016				9/23/2014	8.9	623.03
9/8/2015         5.72         626.21           12/17/2015         5.32         626.61           2/29/2016         5.41         626.52           6/1/2016         5.51         626.42           9/8/2016         5.51         626.42           12/2/2016         5.65         626.28           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.56         626.28         626.55           1/2/1/2014         6.62         626.89         1/2/2014         6.57         626.49           9/8/2015         6.51         626.29         1/2/2014         6.56         626.95           1/2/1/2014         6.57         626.49         9/23/2014         6.04         627.47           6/12/2015         5.21         628.30         9/8/2015         6.35         627.16           12/17/2015         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           Groundwater)         12/2/2016         5.79         627.72         6/1/2016         5.67         627.82				6/12/2015	5.32	626.61
MW-29         633.51         4.5-14.5         3/11/2015         5.32         626.61           12/27/2016         5.41         626.52         6/1/2016         5.41         626.42           9/8/2016         5.51         626.42         9/8/2016         5.51         626.42           MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4/5/2013         6.56         626.59         626.69           1/21/2014         6.62         626.89         7/29/2014         6.57         626.94           9/8/2015         5.51         627.47         6/12/2015         5.51         627.47           6/1/2015         5.21         628.30         9/8/2015         6.35         627.16           12/17/2015         5.67         627.84         2/29/2016         5.67         627.84           2/29/2016         5.69         627.82         6/1/2016         5.67         627.84           12/2/2016         5.67         627.84         12/2/2016         6.57         627.84           12/2/2016         5.67         627.84         12/2/2016         6.57         627.84           12/2/2016         5.67         627.584				9/8/2015	5.72	626.21
MW-29         633.51         4.5-14.5         3/11/2013         13.08         626.52           Groundwater)         633.51         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4.5-14.5         3/11/2013         6.96         626.55         626.28           MW-29         633.51         4.5-14.5         3/11/2013         6.96         626.55           1/2/12/014         6.62         626.55         1/21/2014         6.62         626.99           1/21/2014         6.62         626.99         1/21/2014         6.62         626.99           9/23/2014         6.04         627.47         6/12/2015         5.21         628.30           9/8/2015         6.35         627.16         12/17/2015         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.69         627.12           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         636.71         8-23         5/13/2013         10.87         625.84           7/29/2014				12/17/2015	5.32	626.61
MW-29         633.51         4.5-14.5         3/11/2013         13.08         620.42           (Groundwater)         4.5-14.5         3/11/2013         13.08         620.43           (Groundwater)         4.5-14.5         3/11/2013         6.56         626.28           MW-29         633.51         4.5-14.5         3/11/2013         6.56         626.95           1/21/2014         6.62         626.89         7/29/2014         6.56         626.95           1/21/2015         5.21         628.30         627.47         6/12/2015         5.21         628.30           9/8/2015         6.35         627.16         12/17/2015         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.26         627.26         627.26         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         12/2/2016         5.65         9/8/2015         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         12/2/2016				2/29/2016	5.41	626.52
W-29 (Groundwater)         633.51         4.5-14.5         3/11/2013         13.08         620.43           MW-29 (Groundwater)         633.51         4.5-14.5         3/11/2013         6.56         626.55           4/29/2013         6.56         626.95         4/29/2014         6.57         626.95           1/21/2014         6.62         626.89         7/29/2014         6.64         627.47           6/12/2015         5.21         628.30         9/8/2015         6.35         627.16           12/17/2015         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.82           9/8/2016         5.69         627.72         6/1/2016         5.69         627.32           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.39         6/1/2/2015         9.61         627.29				6/1/2016	5.47	626.46
NW-29 (Groundwater)         633.51         4.5-14.5         3/11/2013 4/5/2013         13.08         620.43           (Groundwater)         4.5-14.5         3/11/2013         6.56         626.55           4/29/2013         6.56         626.94           9/23/2014         6.64         627.47           6/12/2015         5.21         628.30           9/8/2015         6.35         627.16           12/17/2015         5.67         627.84           2/29/2016         5.79         627.72           6/1/2016         5.69         627.84           12/2/2016         5.67         627.84           12/2/2016         5.67         627.84           12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         12/17/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29				9/8/2016	5.51	626.42
MW-29         633.51         4.5-14.5         371/2013         13.08         6.20.43           (Groundwater)         4/5/2013         6.96         626.55           4/29/2013         6.56         626.95           1/21/2014         6.62         626.89           7/29/2014         6.57         626.94           9/23/2014         6.04         627.47           6/12/2015         5.21         628.30           9/8/2015         6.35         627.16           12/17/2015         5.67         627.84           2/29/2016         5.79         627.82           9/8/2016         5.67         627.84           12/27/2016         6.567         627.84           12/2/2016         5.67         627.84           12/2/2016         5.67         627.82           9/8/2016         5.67         627.84           12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/2/2/2014         10.87         625.84         12/17/2015         9.61         627.10           9/8/2015         9.82         626.89         6/1/2016	104/00	(00.54		12/2/2016	5.65	626.28
(Groundwater)         4/3/2013         6.96         626.95           4/29/2013         6.56         626.95           1/21/2014         6.62         626.89           7/29/2014         6.64         627.47           6/12/2015         5.21         628.30           9/8/2015         6.35         627.16           12/17/2015         5.67         627.84           2/29/2016         5.79         627.82           9/8/2016         5.67         627.84           12/17/2015         5.67         627.84           12/2/2016         5.69         627.82           9/8/2016         5.67         627.82           9/8/2016         5.67         627.84           12/1/2014         10.88         626.13           (Groundwater)         1/21/2014         10.81         625.90           9/23/2014         11.32         625.39           6/1/2015         9.61         627.10           9/8/2015         10.53         626.13           (Groundwater)         6/1/2015         9.42         627.29           2/29/2016         9.78         626.93           9/8/2016         9.90         626.81           1	MW-29 (Crowndwater)	633.51	4.5-14.5	3/11/2013	13.08	620.43
MW-31         636.71         8-23         5/13/2014         6.62         626.89           MW-31         636.71         8-23         5/13/2014         6.04         627.47           MW-31         636.71         8-23         5/13/2015         5.21         628.30           MW-31         636.71         8-23         5/13/2015         5.67         627.84           12/2/2016         5.79         627.72         6/1/2016         5.69         627.82           9/8/2015         5.67         627.84         12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.81         625.99         9/8/2015         10.53         626.18           12/17/2015         9.61         627.10         9/8/2015         10.53         626.93         6/12/2015         9.61         627.10           9/8/2015         10.53         626.80         9         9/8/2015         10.53         626.93         6/1/2016         9.82         626.80           9/8/2016         9.90         626.81         12/2/2014         4.16         626.50         6/12/2015         3.79         627	(Groundwater)			4/5/2013	6.96	020.00 404 05
MW-31         636.71         8-23         5/12/2014         6.57         626.94           MW-31         636.71         8-23         5/13/2015         5.21         628.30           MW-31         636.71         8-23         5/13/2015         5.67         627.84           12/27/2016         5.79         627.72         6/1/2016         5.67         627.84           12/27/2016         5.67         627.84         2/29/2016         5.67         627.84           12/27/2016         5.67         627.84         2/29/2016         5.67         627.84           12/27/2016         5.67         627.84         2/29/2016         5.67         627.84           12/27/2016         5.67         627.84         2/29/2016         5.67         627.84           12/27/2016         5.67         627.84         2/29/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.81         625.90         9/23/2014         11.32         625.39           6/12/2015         9.61         0.53         626.18         12/17/2015         9.42         627.10           <				4/29/2013	0.00	626.90
MW-31         636.71         8-23         5/12/2014         6.04         627.47           MW-31         636.71         8-23         9/8/2015         6.35         627.16           MW-31         636.71         8-23         5/13/2014         6.04         627.72           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84         7/29/2014         10.81         625.90           9/8/2015         9.61         627.10         9.82         626.13         626.18           12/2/2014         10.81         625.90         9/8/2015         9.61         627.29           9/8/2015         9.61         627.29         627.29         627.29         627.29         627.29           2/29/2016         9.78         626.93         626.18         627.29         627.29         627.29           2/29/2016         9.78         626.81         12/2/2015         9.42         627.29         626.81           12/2/2				7/20/2014	0.02	626.04
MW-31         636.71         8-23         5/12/2015         5.21         628.30           MW-31         636.71         8-23         5/12/2015         5.67         627.72           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84           7/29/2014         10.81         625.90           9/8/2015         9.61         627.10           9/8/2015         9.61         627.10           9/8/2015         9.61         627.10           9/8/2015         9.641         627.10           9/8/2015         9.641         627.10           9/8/2015         9.42         627.29           2/29/2016         9.78         626.81           12/17/2015         9.42         627.29           2/29/2016         9.78         626.81           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.9				0/23/2014	6.04	627.47
MW-31         636.71         8-23         5/13/2015         6.35         627.16           MW-31         636.71         8-23         5/13/2016         5.67         627.84           12/2/2016         5.67         627.82         9/8/2016         5.67         627.84           12/2/2016         6.25         627.26         677.26         677.84         12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13         625.84           (Groundwater)         1/21/2014         10.87         625.84         625.90         9/23/2014         11.32         625.39           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29         627.29         627.29         627.29         627.29         627.29         627.29         627.29         627.29         627.29         627.29         626.81         626.93         626.18         626.93         626.18         626.93         626.81         626.93         626.50         626.81         626.50         626.37         626.25         627.17         626.50         626.37         626.27         626.37         626.2				6/12/2015	5 21	628 30
MW-31         630-96         630-97         627.84           MW-31         636.71         8-23         5/13/2015         5.67         627.82           9/8/2016         5.67         627.82         9/8/2016         5.67         627.84           12/2/2016         6.25         627.26         627.84         12/2/2016         6.25         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13         625.84           (Groundwater)         1/21/2014         10.81         625.90         9/23/2014         11.32         625.39           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29         2/29/2016         9.78         626.93           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29         2/29/2016         9.78         626.93           6/1/2016         9.82         626.89         9/8/2016         9.90         626.81           12/2/2016         10.21         626.50         626.37         6/1/2015         3.79         627.17 <t< td=""><td></td><td></td><td></td><td>9/8/2015</td><td>6 35</td><td>627.16</td></t<>				9/8/2015	6 35	627.16
MW-31         636.71         8-23         5/12/2016         5.79         627.72           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84         1/21/2014         10.87         625.84           9/8/2015         9/8/2015         9.61         627.10         9/8/2015         9/8/2015         627.26           MW-31         636.71         8-23         5/13/2013         10.58         626.13           9/23/2014         10.87         625.84         625.90         9/23/2014         11.32         625.39           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29         2/29/2016         9.78         626.93           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2016         9.82         626.93         626.73         626.93           6/12/2016         9.90         626.81         12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.37         6/1/2015 </td <td></td> <td></td> <td></td> <td>12/17/2015</td> <td>5.67</td> <td>627.84</td>				12/17/2015	5.67	627.84
MW-31         636.71         8-23         5/13/2016         5.69         627.82           MW-31         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84           7/29/2014         10.81         625.90           9/8/2015         9.61         627.10           9/8/2015         9.61         627.10           9/8/2015         9.61         627.10           9/8/2015         9.61         627.26           1/2/1/2014         10.81         626.93           6/1/2015         9.61         627.10           9/8/2015         10.53         626.18           12/17/2015         9.42         627.29           2/29/2016         9.78         626.81           12/17/2015         9.42         627.29           2/29/2016         9.78         626.81           12/2/2016         10.21         626.83           9/8/2016         9.90         626.37           (Perched)         7/29/2014         4.16         626.37           9/23/2014         4.59         626.37         627.39           6/12/2015         3.79         627.				2/29/2016	5 79	627.72
MW-31         636.71         8-23         5/13/2016         5.67         627.84           (Groundwater)         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         636.71         8-23         5/13/2013         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84           7/29/2014         10.81         625.90           9/8/2015         9.61         627.10           9/8/2015         9.61         627.10           9/8/2015         9.61         627.29           2/29/2016         9.78         626.81           12/17/2015         9.42         627.29           2/29/2016         9.78         626.93           6/1/2016         9.82         626.81           12/2/2016         9.78         626.37           6/1/2016         9.90         626.37           (Perched)         7/29/2014         4.59         626.37           9/8/2015         R         R         R           2/29/2016         3.57         627.39           6/1/2015         3.79         627.17           9/8/2015         R         R				6/1/2016	5.69	627.82
MW-31 (Groundwater)         636.71         8-23         5/13/2013 1/21/2014         10.58         626.13           1/21/2014         10.87         625.84         625.90         9/23/2014         10.81         625.90           9/23/2014         11.32         625.39         6/12/2015         9.61         627.10           9/8/2015         10.53         626.18         12/17/2015         9.42         627.29           2/29/2016         9.78         626.81         12/27/2016         9.78         626.81           12/17/2015         9.42         627.29         2/29/2016         9.78         626.93           6/1/2016         9.82         626.81         12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.37           (Perched)         7/29/2014         4.59         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         R         2/29/2016         3.57         627.39           6/1/2015         3.79         627.17         9/8/2015         R         R           9/8/2015         R         R         12/2/2016         3.57         627.39 <td></td> <td></td> <td></td> <td>9/8/2016</td> <td>5.67</td> <td>627.84</td>				9/8/2016	5.67	627.84
MW-31 (Groundwater)         636.71         8-23         5/13/2013 1/21/2014         10.58         626.13           (Groundwater)         1/21/2014         10.87         625.84           7/29/2014         10.81         625.90           9/23/2014         11.32         625.39           6/12/2015         9.61         627.10           9/8/2015         10.53         626.18           12/17/2015         9.42         627.29           2/29/2016         9.78         626.89           6/1/2016         9.82         626.81           12/2/2016         10.21         626.80           12/2/2016         10.21         626.37           9/23/2014         4.59         626.37           6/12/2015         3.79         627.17           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16           626.37         9/23/2014         4.59         626.37           6/12/2015         3.79         627.17         9/8/2015           9/8/2015         R         R         R           2/29/2016         3.57				12/2/2016	6.25	627.26
(Groundwater) (Groundwater) (Groundwater)	MW-31	636.71	8-23	5/13/2013	10.58	626.13
MW-32         630.96         2.5-5         1/21/2014         10.81         625.90           MW-32         630.96         2.5-5         1/21/2015         9.61         626.80           9/8/2015         10.53         626.18         627.29         626.89         61/2016         9.82         626.89         626.81           12/2/2016         9.90         626.81         12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           9/8/2015         3.79         626.37         6/12/2015         3.79         627.17           9/8/2015         8         8         8         6/12/2015         3.79         627.17           9/8/2016         3.57         626.37         6/12/2015         3.79         627.17           9/8/2015         8         8         8         8         8         8           9/8/2015         8         8         8         8         6/12/2015         3.79         627.17           9/8/2016         3.62         627.34         9/8/2016         3.62         627.34         9/8/2016         3.83         627.13           9/8/2016         3.83	(Groundwater)			1/21/2014	10.87	625.84
MW-32         630.96         2.5-5         1/21/2014         4.16         626.37           (Perched)         630.96         2.5-5         1/21/2014         4.16         626.37           6/12/2015         9.61         627.10         9/8/2015         10.53         626.18           12/17/2015         9.42         627.29         2/29/2016         9.78         626.93           6/1/2016         9.82         626.81         12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           9/8/2015         3.79         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         R         2/29/2016         3.57         627.39           6/12/2015         3.79         627.17         9/8/2015         R         R         1/2/2015           9/8/2016         3.57         627.39         6/1/2016         3.62         627.34           9/8/2016         3.83         627.13         9/8/2016         3.83         627.13				7/29/2014	10.81	625.90
MW-32 (Perched)         630.96         2.5-5         1/21/2015         9.61         627.10           9/8/2015         10.53         626.18         627.29         626.93         626.93         626.89         626.89         626.89         626.89         626.81         626.89         626.81         626.50         626.81         626.50         626.81         626.50         626.81         626.50         626.81         626.50         626.81         626.50         626.81         626.50         626.37         626.37         626.37         626.37         626.37         626.37         626.37         626.37         626.21         627.17         978/2015         8         R         R         8         627.17         978/2015         8.79         627.17         627.39         627.17         627.39         627.17         978/2015         8         8         8         627.39         627.17         627.39         627.13         627.39         627.13 <td></td> <td></td> <td></td> <td>9/23/2014</td> <td>11.32</td> <td>625.39</td>				9/23/2014	11.32	625.39
9/8/2015         10.53         626.18           12/17/2015         9.42         627.29           2/29/2016         9.78         626.93           6/1/2016         9.82         626.89           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16           (Perched)         630.96         2.5-5         1/21/2014         4.59           9/23/2014         4.59         626.37         6/12/2015         3.79           6/12/2015         3.79         627.17         9/8/2015         R         R           9/8/2016         3.57         627.39         6/1/2016         3.62         627.39           6/1/2016         3.83         627.13         12/2/2016         3.74         627.37				6/12/2015	9.61	627.10
12/17/2015         9.42         627.29           2/29/2016         9.78         626.93           6/1/2016         9.82         626.89           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           (Perched)         7/29/2014         4.59         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         R         2/29/2016         3.57         627.39           6/1/2016         3.62         627.39         6/1/2016         3.62         627.34           9/8/2016         3.83         627.13         12/2/2016         3.75         627.34				9/8/2015	10.53	626.18
2/29/2016         9.78         626.93           6/1/2016         9.82         626.89           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           (Perched)         7/29/2014         4.59         626.37         626.37           9/23/2014         4.59         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         8         2/29/2016         3.57         627.39           6/1/2016         3.62         627.34         9/8/2016         3.83         627.13           12/2/2016         3.257         627.34         9/8/2016         3.83         627.13				12/17/2015	9.42	627.29
6/1/2016         9.82         626.89           9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           (Perched)         7/29/2014         4.59         626.37         6/20.37           6/12/2015         3.79         627.17         9/8/2015         R         R           2/29/2016         3.57         627.39         6/1/2016         3.62         627.34           9/8/2016         3.83         627.13         12/2/2016         3.83         627.13				2/29/2016	9.78	626.93
9/8/2016         9.90         626.81           12/2/2016         10.21         626.50           MW-32         630.96         2.5-5         1/21/2014         4.16         626.80           (Perched)         7/29/2014         4.59         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         2/29/2016         3.57         627.39         6/1/2016         3.62         627.34           9/8/2016         3.83         627.13         12/2/2016         3.83         627.13         2/29.2016         3.83         627.13				6/1/2016	9.82	626.89
MW-32         630.96         2.5-5         1/21/2014         4.16         626.50           (Perched)         7/29/2014         4.59         626.37           9/23/2014         4.59         626.37           6/12/2015         3.79         627.17           9/8/2015         R         R           2/29/2016         3.57         627.39           6/1/2016         3.62         627.34           9/8/2016         3.83         627.13           12/2/2016         3.40         627.15				9/8/2016	9.90	626.81
MW-32 (Perched)         630.96         2.5-5         1/21/2014         4.16         626.80           9/23/2014         4.59         626.37         9/23/2014         4.59         626.37           9/23/2014         4.59         626.37         6/12/2015         3.79         627.17           9/8/2015         R         R         R         2/29/2016         3.57         627.39           6/1/2016         3.62         627.34         9/8/2016         3.83         627.13           12/2/2016         2.400         627.54         627.54         627.54				12/2/2016	10.21	626.50
7/29/2014         4.59         626.37           9/23/2014         4.59         626.37           6/12/2015         3.79         627.17           9/8/2015         R         R           2/29/2016         3.57         627.39           6/1/2016         3.62         627.34           9/8/2016         3.83         627.13           12/2/2016         3.40         627.54	MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
9/23/2014         4.59         626.37           6/12/2015         3.79         627.17           9/8/2015         R         R           2/29/2016         3.57         627.39           6/1/2016         3.62         627.34           9/8/2016         3.83         627.13           12/2/2016         2.40         627.54	(Perched)			7/29/2014	4.59	626.37
6/12/2015         3.79         627.17           9/8/2015         R         R           2/29/2016         3.57         627.39           6/1/2016         3.62         627.34           9/8/2016         3.83         627.13           12/2/2016         2.40         627.54				9/23/2014	4.59	626.37
9/8/2015         R         R           2/29/2016         3.57         627.39           6/1/2016         3.62         627.34           9/8/2016         3.83         627.13           12/2/2016         2.400         627.56				6/12/2015	3.79	627.17
2/29/2016 3.57 627.39 6/1/2016 3.62 627.34 9/8/2016 3.83 627.13 12/2/2016 2.40 627.56				9/8/2015	R	K (27.20
0/1/2016         3.62         62/.34           9/8/2016         3.83         627.13           12/2/2016         2.40         627.56				2/29/2016	3.5/	627.39
9/0/2010 3.83 02/.13 12/2/2016 2.40 627.54				0/1/2016	3.62 2.02	021.34 607.12
				12/2/2010	3.03 3.10	627.13

Table 2 Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02

Notes:

626.02 Prepared by: BEF 02/01/17

Checked by: KK 02/03/17 Reviewed by: AMF/FMB 02/09/17

bgs - below ground surface.
 msl - above mean sea level.

 btoc - below top of casing.
 R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

#### Table 3 French Drain Water **Analytical Data**

	Samp	le ID	Samp	le ID	Samp	le ID	Samp	le ID	Samp	le ID	Samp	le ID	Samp	le ID
	FD100	716-01	FD100	716-02	FD100	716-03	FD100	716-04	FD100	716-05	FD100	716-06	FD100	716-07
	Date Co	ollected	Date Co	ollected	Date Co	ollected	Date Co	ollected	Date Co	ollected	Date Co	ollected	Date Co	ollected
	10/7/201	16 11:00	10/7/201	16 11:00	10/7/201	16 11:00	10/7/20 <sup>-</sup>	16 11:00	10/7/201	6 11:00	10/7/20 <sup>-</sup>	16 11:00	10/7/201	16 11:00
Metals														
Parameter:	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units
Antimony	0.055	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Arsenic	0.010	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Barium	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Cadmium	0.0018	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Chromium	0.018	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Copper	0.0370	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Iron	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Lead	0.055	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Manganese	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Nickel	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Selenium	0.0128	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Silver	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Zinc	0.008	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Mercury	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
General Chemistry														
Parameter:	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units
Cyanide, Total	NA	mg/L	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Phenols	NA	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Biochemical Oxygen Demand	NA	mg/L	NA	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Total Suspended Solids	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	5.0	mg/L	NA	mg/L	NA	mg/L
Ammonia - N	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	ND	mg/L	NA	mg/L
Chloride	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	24.7	mg/L
Sulfate	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	509	mg/L
Total Dissolved Solids	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	810	mg/L

Notes:

1) NA - Not Analyzed

ND - Not Detected
 mg/L - milligrams per liter

Prepared by: BEF 02/01/17 Checked by: KK 02/07/17

Reviewed by: AMF/FMB 02/09/17



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Friday, October 14, 2016

Exide Technologies Eduardo Salazar P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

#### Re: Project Name: French Drain

Oxidor received 7 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	<u>Collected</u>	Analysis
16100276-001	FD 100716-01	Liquid	10/7/2016 11:00	Antimony, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Zinc
16100276-002	FD 100716-02	Liquid	10/7/2016 11:00	Cyanide, Total
16100276-003	FD 100716-03	Liquid	10/7/2016 11:00	Phenols
16100276-004	FD 100716-04	Liquid	10/7/2016 11:00	Biochemical Oxygen Demand
16100276-005	FD 100716-05	Liquid	10/7/2016 11:00	Total Suspended Solids
16100276-006	FD 100716-06	Liquid	10/7/2016 11:00	Ammonia - N
16100276-007	FD 100716-07	Liquid	10/7/2016 11:00	Chloride, Sulfate, Total Dissolved Solids

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

Customer Sample ID: Oxidor Sample ID:	<b>FD 10</b> 16100	<b>0716-01</b> 276-001			Matrix: Li	quid		
Sample Received:	10/7/2	016		Samp	ole Collected: 10	/7/2016 11	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 10/10/16 at	09:00							
Antimony	0.003	0.005	0.055	mg/L	10/10/16 14:38	200.8	M.A.	
Arsenic	0.003	0.005	0.010	mg/L	10/10/16 14:38	200.8	M.A.	
Cadmium	0.0005	0.001	0.0018	mg/L	10/10/16 14:38	200.8	M.A.	
Chromium	0.003	0.005	0.018	mg/L	10/10/16 14:38	200.8	M.A.	
Copper	0.0025	0.005	0.0370	mg/L	10/10/16 14:38	200.8	M.A.	
Lead	0.003	0.005	0.055	mg/L	10/10/16 14:38	200.8	M.A.	
Nickel	0.003	0.005	ND	mg/L	10/10/16 14:38	200.8	M.A.	
Selenium	0.0025	0.005	0.0128	mg/L	10/10/16 14:38	200.8	M.A.	
Silver	0.001	0.001	ND	mg/L	10/10/16 14:38	200.8	M.A.	
Zinc	0.003	0.005	0.008	mg/L	10/10/16 14:38	200.8	M.A.	
Digested by method 245.1 on 10/10/16 at	09:00			-				
Mercury	0.0001	0.0002	ND	mg/L	10/10/16 14:14	245.1	I.Z.	





# **Analytical Report**

Customer Sample ID:	FD 10	0716-02						
Oxidor Sample ID:	16100	276-002			Matrix:	Liquid		
Sample Received:	10/7/2	2016		Samp	ole Collected:	10/7/2016 11:0	00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	d Method	Analyst	Flags
General Chemistry								
Cyanide, Total	0.01	0.02	ND	mg/L	10/10/16 10:00	SM-4500-CN C,E	A.T.	





# **Analytical Report**

Customer Sample ID:	FD 10	0716-03						
Oxidor Sample ID:	16100	276-003			Matrix: Lie	quid		
Sample Received:	10/7/2	016		Samp	ole Collected: 10	/7/2016 11	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Phenols	0.005	0.005	ND	mg/L	10/10/16 11:00	420.1	B.F.	





# **Analytical Report**

# Project Name: French Drain

Customer Sample ID:	FD 10	0716-04						
Oxidor Sample ID:	16100	276-004			Matrix: L	iquid		
Sample Received:	10/7/2	2016		Samp	ble Collected: 1	0/7/2016 11	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Biochemical Oxygen Demand	2.0	2	ND	mg/L	10/07/16 15:30	SM-5210-B	K.E.L.	
Analysis started 4 50 hours aft	er sample c	ollection						

.50 sample c ıy:





# **Analytical Report**

Customer Sample ID:	FD 10	0716-05						
Oxidor Sample ID:	16100	)276-005			Matrix: L	iauid		
Sample Received:	10/7/2	2016		Samp	ble Collected: 1	0/7/2016 11	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Suspended Solids	5.0	5	5.0	mg/L	10/11/16 15:00	SM-2540-D	W.S.	





# **Analytical Report**

Customer Sample ID:	ED 10	0716-06						
Oxidor Sample ID:	16100	276-006			Matrix:	Liguid		
Sample Received:	10/7/2	2016		Samp	ole Collected:	10/7/2016 11:0	00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	d Method	Analyst	Flags
General Chemistry								
Ammonia - N	0.20	0.2	ND	mg/L	10/11/16 11:00	SM-4500-NH3 D	B.F.	





# **Analytical Report**

Customer Sample ID:	FD 10	0716-07						
Oxidor Sample ID:	Matrix: Liguid							
Sample Received:	10/7/2	2016		Samp	ole Collected: 1	0/7/2016 11	:00	
Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Chloride	10.0	1	24.7	mg/L	10/07/16 20:54	300.0	P.C.	Dx10
Sulfate	10.0	1	509	mg/L	10/07/16 20:54	300.0	P.C.	Dx10
Total Dissolved Solids	20.0	25	810	mg/L	10/07/16 16:30	SM-2540-C	W.S.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD 100716-01	16100276-001	Mercury	245.1	MERC_06135_L
		Zinc	200.8	META_10364_L
		Arsenic	200.8	META_10364_L
		Cadmium	200.8	META_10364_L
		Chromium	200.8	META_10364_L
		Copper	200.8	META_10364_L
		Lead	200.8	META_10364_L
		Nickel	200.8	META_10364_L
		Antimony	200.8	META_10364_L
		Silver	200.8	META_10364_L
		Selenium	200.8	META_10364_L
FD 100716-02	16100276-002	Cyanide, Total	SM-4500-CN C,E	CYAN_00523_L
FD 100716-03	16100276-003	Phenols	420.1	PHEN_05120_L
FD 100716-04	16100276-004	Biochemical Oxygen Demand	SM-5210-B	BOD08255_L
FD 100716-05	16100276-005	Total Suspended Solids	SM-2540-D	TSS05832_L
FD 100716-06	16100276-006	Ammonia - N	SM-4500-NH3 D	AMM06640_L
FD 100716-07	16100276-007	Chloride	300.0	IC01219_L
		Sulfate	300.0	IC01219_L
		Total Dissolved Solids	SM-2540-C	TDS04022_L





# **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ND AMM_06640_L								
Blank	Ammonia - N	ND mg/L							
LCS	Ammonia - N	1.95 mg/L		1.96 mg/L	100%	90-110%			
LCSD	Ammonia - N	1.96 mg/L		1.96 mg/L	100%	90-110%	0.5%	0-20%	
MS	Ammonia - N	1.93 mg/L	ND	1.96 mg/L	99%	80-120%			
MSD	Ammonia - N	2.09 mg/L	ND	1.96 mg/L	107%	80-120%	8.0%	0-20%	
QCBatch	ND BOD08255_L								
Blank	Biochemical Oxygen Demand	ND mg/L							
LCS	Biochemical Oxygen Demand	200 mg/L		198 mg/L	101%	85-115%			
Replicate	Biochemical Oxygen Demand	ND mg/L	ND				0.0%	0-20%	
QCBatch	ND CYAN_00523_L								
Blank	Cyanide, Total	ND mg/L							
LCS	Cyanide, Total	0.19 mg/L		0.2 mg/L	96%	90-110%			
LCSD	Cyanide, Total	0.19 mg/L		0.2 mg/L	95%	90-110%	0.5%	0-20%	
MS	Cyanide, Total	0.19 mg/L	ND	0.2 mg/L	97%	80-120%			
MSD	Cyanide, Total	0.19 mg/L	ND	0.2 mg/L	96%	80-120%	0.5%	0-20%	
QCBatch	ND IC01219_L								
Blank	Chloride	ND mg/L							
	Sulfate	ND mg/L							
LCS	Chloride	2.72 mg/L		3 mg/L	91%	90-110%			
	Sulfate	13.8 mg/L		15 mg/L	92%	90-110%			
LCSD	Chloride	2.70 mg/L		3 mg/L	90%	90-110%	0.7%	0-20%	
	Sulfate	14.0 mg/L		15 mg/L	94%	90-110%	1.6%	0-20%	
MS	Chloride	2.73 mg/L	0.26 mg/L	3 mg/L	82%	80-120%			
	Sulfate	13.4 mg/L	ND	15 mg/L	90%	80-120%			
MSD	Chloride	2.75 mg/L	0.26 mg/L	3 mg/L	83%	80-120%	0.7%	0-20%	
	Sulfate	13.9 mg/L	ND	15 mg/L	93%	80-120%	3.5%	0-20%	
QCBatch	DID PHEN_05120_L								
Blank	Phenols	ND mg/L							
LCS	Phenols	0.097 mg/L		0.1 mg/L	97%	90-110%			
LCSD	Phenols	0.096 mg/L		0.1 mg/L	96%	90-110%	1.0%	0-20%	
MS	Phenols	0.097 mg/L	ND	0.1 mg/L	97%	80-120%			
MSD	Phenols	0.098 mg/L	ND	0.1 mg/L	98%	80-120%	1.0%	0-20%	
QCBatch	ND TDS04022_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	975 mg/L		1000 mg/L	98%	90-110%			
LCSD	Total Dissolved Solids	980 mg/L		1000 mg/L	98%	90-110%	0.5%	0-5%	
Replicate	Total Dissolved Solids	1140 mg/L	1140 mg/L				0.4%	0-5%	





# **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID TSS05832_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	473 mg/L		500 mg/L	95%	85-115%			
LCSD	Total Suspended Solids	480 mg/L		500 mg/L	96%	85-115%	1.5%	0-15%	
Replicate	Total Suspended Solids	84.0 mg/L	80.0 mg/L				4.9%	0-15%	
QCBatch	ID MERC_06135_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0051 mg/L		0.005 mg/L	102%	85-115%			
LCSD	Mercury	0.0049 mg/L		0.005 mg/L	97%	85-115%	4.6%	0-25%	
MS	Mercury	0.0044 mg/L	ND	0.005 mg/L	88%	80-120%			
MSD	Mercury	0.0050 mg/L	ND	0.005 mg/L	99%	80-120%	12.2%	0-25%	
QCBatch	ID META_10364_L								
Blank	Antimony	ND mg/L							
	Arsenic	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Lead	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Antimony	0.525 mg/L		0.5 mg/L	105%	85-115%			
	Arsenic	0.514 mg/L		0.5 mg/L	103%	85-115%			
	Cadmium	0.5227 mg/L		0.5 mg/L	105%	85-115%			
	Chromium	0.537 mg/L		0.5 mg/L	107%	85-115%			
	Copper	0.5345 mg/L		0.5 mg/L	107%	85-115%			
	Lead	0.517 mg/L		0.5 mg/L	103%	85-115%			
	Nickel	0.511 mg/L		0.5 mg/L	102%	85-115%			
	Selenium	0.5243 mg/L		0.5 mg/L	105%	85-115%			
	Silver	0.547 mg/L		0.5 mg/L	109%	85-115%			
	Zinc	0.529 mg/L		0.5 mg/L	106%	85-115%			
LCSD	Antimony	0.527 mg/L		0.5 mg/L	105%	85-115%	0.4%	0-20%	
	Arsenic	0.521 mg/L		0.5 mg/L	104%	85-115%	1.4%	0-20%	
	Cadmium	0.5239 mg/L		0.5 mg/L	105%	85-115%	0.2%	0-20%	
	Chromium	0.533 mg/L		0.5 mg/L	107%	85-115%	0.7%	0-20%	
	Copper	0.5374 mg/L		0.5 mg/L	108%	85-115%	0.5%	0-20%	
	Lead	0.517 mg/L		0.5 mg/L	103%	85-115%	0.0%	0-20%	
	Nickel	0.504 mg/L		0.5 mg/L	101%	85-115%	1.4%	0-20%	
	Selenium	0.5238 mg/L		0.5 mg/L	105%	85-115%	0.1%	0-20%	
	Silver	0.534 mg/L		0.5 mg/L	107%	85-115%	2.4%	0-20%	
	Zinc	0.525 mg/L		0.5 mg/L	105%	85-115%	0.7%	0-20%	
MS	Antimony	0.513 mg/L	0.003 mg/L	0.5 mg/L	102%	80-120%			





# **QC Summary**

			Reference		Rec		RPD		
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_10364_L								
	Arsenic	0.512 mg/L	ND	0.5 mg/L	102%	80-120%			
	Cadmium	0.5053 mg/L	ND	0.5 mg/L	101%	80-120%			
	Chromium	0.531 mg/L	ND	0.5 mg/L	106%	80-120%			
	Copper	0.5371 mg/L	0.0147 mg/L	0.5 mg/L	105%	80-120%			
	Lead	0.511 mg/L	ND	0.5 mg/L	102%	80-120%			
	Nickel	0.507 mg/L	ND	0.5 mg/L	101%	80-120%			
	Selenium	0.5144 mg/L	ND	0.5 mg/L	103%	80-120%			
	Silver	0.527 mg/L	ND	0.5 mg/L	105%	80-120%			
	Zinc	0.544 mg/L	0.036 mg/L	0.5 mg/L	102%	80-120%			
MSD	Antimony	0.515 mg/L	0.003 mg/L	0.5 mg/L	102%	80-120%	0.4%	0-20%	
	Arsenic	0.511 mg/L	ND	0.5 mg/L	102%	80-120%	0.2%	0-20%	
	Cadmium	0.5030 mg/L	ND	0.5 mg/L	101%	80-120%	0.5%	0-20%	
	Chromium	0.530 mg/L	ND	0.5 mg/L	106%	80-120%	0.2%	0-20%	
	Copper	0.5334 mg/L	0.0147 mg/L	0.5 mg/L	104%	80-120%	0.7%	0-20%	
	Lead	0.518 mg/L	ND	0.5 mg/L	104%	80-120%	1.4%	0-20%	
	Nickel	0.508 mg/L	ND	0.5 mg/L	102%	80-120%	0.2%	0-20%	
	Selenium	0.5081 mg/L	ND	0.5 mg/L	102%	80-120%	1.2%	0-20%	
	Silver	0.521 mg/L	ND	0.5 mg/L	104%	80-120%	1.1%	0-20%	
	Zinc	0.547 mg/L	0.036 mg/L	0.5 mg/L	102%	80-120%	0.5%	0-20%	





# **Case Narrative**

#### Project Name: French Drain

Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

Receipt temp:	3.0 °C on Ice						
Receipt method:	Customer Courier						
Custody seal intact: '	Yes		All samples / labels received intact: Yes				
Customer Sample ID:	FD 100716-01		Collected By: Ramon Dimas				
Oxidor Sample ID:	16100276-001		Collector Affiliation: Exide Technologies				
Collected:	10/07/16 11:00		Matrix: Liquid				
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	<u>Parts / Interval</u>	<b>Preservation</b>	<u>pH</u>		
250 mL Plas	tic 1	Grab		HNO3	<2		
Customer Sample ID:	FD 100716-02		Collected By: Ramon Dimas				
Oxidor Sample ID:	16100276-002		Collector Affiliation:	Exide Techno	ologies		
Collected:	10/07/16 11:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>pH</u>		
250 mL Plas	tic 1	Grab		NaOH	>12		
Customer Sample ID:	FD 100716-03		Collected By:	Ramon Dimas	5		
Oxidor Sample ID:	16100276-003		Collector Affiliation:	Exide Techno	ologies		
Collected:	10/07/16 11:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	<u>Parts / Interval</u>	<b>Preservation</b>	<u>pH</u>		
500 mL Amb	per 1	Grab		H2SO4	<2		
Customer Sample ID:	FD 100716-04		Collected By:	Ramon Dimas	5		
Oxidor Sample ID:	16100276-004		Collector Affiliation:	Exide Techno	ologies		
Collected:	10/07/16 11:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>pH</u>		
1000 mL Pla	istic 1	Grab		None	-		
Customer Sample ID:	FD 100716-05		Collected By:	Ramon Dimas	5		
Oxidor Sample ID:	16100276-005		Collector Affiliation: Exide Technologies				
Collected:	10/07/16 11:00		Matrix:	Liquid			
				Indicated			
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Preservation	<u>pH</u>		
1000 mL Pla	istic 1	Grab		None	-		





# **Sample Preservation Verification**

# Project Name: French Drain

,								
Customer Sample ID:	FD 100716-	06		Collected By: Ramon Dimas				
Oxidor Sample ID	16100276-0	06		Collector Affiliation:	Exide Techno	ologies		
Collected	: 10/07/16 11:	:00		Matrix: Liquid				
Bottle Type	<u>)</u>	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	<u>pH</u>		
250 mL Pla	stic	1	Grab		H2SO4	<2		
Customer Sample ID:	FD 100716-	07		Collected By:	Ramon Dima	s		
Oxidor Sample ID	16100276-0	07		Collector Affiliation:	Exide Techno	ologies		
Collected	: 10/07/16 11:	:00		Matrix:	Liquid			
Bottle Type	<u>)</u>	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	рH		
250 mL Pla	stic	1	Grab		None	-		

Sample conditions at time of receipt at laboratory verified in part or in whole by:

S.D.





Order ID: 16100276 Date: 10/14/2016 Page 16 of 17

# Documentation

PROJECT DESCRIPTION: French Drain

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### Documentation

1

### PROJECT DESCRIPTION: French Drain

Page 1 of 1

#### **Homer Youngblood**

From:Shelly ConnellySent:Friday, October 7, 2016 2:36 PMTo:CustomerServiceSubject:Exide - Brad - TAT Adjustment

Brad needs a 50% RUSH on the samples received today.

Shelly Connelly Accounts Manager OXIDOR Laboratories, LLC 1825 E. Plano Parkway, Suite 160 Plano, TX 75074 972.424.6422

"When Quality Matters"



April 28, 2017

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2017 FIRST QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the first quarter of 2017. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, is included in this report.

### 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

### 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the first quarter of 2017 included the following:

Daily (week day) Inspections and Maintenance – Inspection of the flowmeter and recording flow rate and totalizer reading.



Golder Associates Inc. 820 S. Main Street, Suite 100 St. Charles, MO 63301 USA Tel: (636) 724-9191 Fax: (636) 724-9323 www.golder.com

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- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the first quarter 2017 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the first quarter of 2017.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

# 3.0 OBSERVATIONS AND RESULTS

### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/s20160331/e20170401/myear).

#### **3.2 Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the first quarter of 2017. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary much from previous readings in 2016 with some wells having a slight decrease in water level while others had a slight increase.

### 3.3 Floodwall Seepage

At the time of the wall inspection on March 2, 2017 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

### 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on March 2, 2017. As such, no samples of white crystalline material were collected or analyzed.

#### 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the first quarter of 2017. Analytical results from these samples are included in Table 3 and Attachment A.



#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the first quarter of 2017 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

#### 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Butt Forth

Brett Forthaus Environmental Engineer

Anne Fauth - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

LRoot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 



Jan-17	Jan-17					Mar-17		
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal) To (i		
10,141		3.17	8,442		3.04	4,626		1.49
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Daily Date Flow Precip Date (gal) (in)		Date	Daily Flow (gal)	Daily Precip (in)
Sunday, January 01, 2017	NR	0.04	Wednesday, February 01, 2017	116	0.00	Wednesday, March 01, 2017	332	0.00
Monday, January 02, 2017	NR	0.51	Thursday, February 02, 2017	89	0.00	Thursday, March 02, 2017	79	0.00
Tuesday, January 03, 2017	2,835	0.00	Friday, February 03, 2017	59	0.00	Friday, March 03, 2017	31	0.00
Wednesday, January 04, 2017	282	0.00	Saturday, February 04, 2017	NR	0.00	Saturday, March 04, 2017	NR	0.04
Thursday, January 05, 2017	NR	0.00	Sunday, February 05, 2017	NR	0.00	Sunday, March 05, 2017	NR	0.09
Friday, January 06, 2017	NR	0.00	Monday, February 06, 2017	206	0.00	Monday, March 06, 2017	884	0.00
Saturday, January 07, 2017	NR	0.00	Tuesday, February 07, 2017	66	0.00	Tuesday, March 07, 2017	292	0.22
Sunday, January 08, 2017	NR	0.00	Wednesday, February 08, 2017	95	0.00	Wednesday, March 08, 2017	193	0.00
Monday, January 09, 2017	201	0.00	Thursday, February 09, 2017	78	0.00	Thursday, March 09, 2017	177	0.00
Tuesday, January 10, 2017	159	0.00	Friday, February 10, 2017	91	0.00	Friday, March 10, 2017	123	0.00
Wednesday, January 11, 2017	61	0.00	Saturday, February 11, 2017	NR	0.00	Saturday, March 11, 2017	NR	0.00
Thursday, January 12, 2017	59	0.00	Sunday, February 12, 2017	NR	0.00	Sunday, March 12, 2017	NR	0.00
Friday, January 13, 2017	68	0.27	Monday, February 13, 2017	180	0.15	Monday, March 13, 2017	356	0.00
Saturday, January 14, 2017	NR	0.01	Tuesday, February 14, 2017	NR	1.42	Tuesday, March 14, 2017	133	0.00
Sunday, January 15, 2017	NR	1.77	Wednesday, February 15, 2017	1,765	0.00	Wednesday, March 15, 2017	NR	0.00
Monday, January 16, 2017	654	0.02	Thursday, February 16, 2017	2,697	0.00	Thursday, March 16, 2017	132	0.00
Tuesday, January 17, 2017	1,892	0.21	Friday, February 17, 2017	740	0.00	Friday, March 17, 2017	19	0.00
Wednesday, January 18, 2017	829	0.14	Saturday, February 18, 2017	NR	0.00	Saturday, March 18, 2017	NR	0.00
Thursday, January 19, 2017	470	0.00	Sunday, February 19, 2017	NR	0.00	Sunday, March 19, 2017	NR	0.00
Friday, January 20, 2017	388	0.00	Monday, February 20, 2017	NR	0.80	Monday, March 20, 2017	227	0.00
Saturday, January 21, 2017	NR	0.20	Tuesday, February 21, 2017	1,326	0.01	Tuesday, March 21, 2017	87	0.00
Sunday, January 22, 2017	NR	0.00	Wednesday, February 22, 2017	43	0.00	Wednesday, March 22, 2017	43	0.00
Monday, January 23, 2017	1.047	0.00	Thursday, February 23, 2017	30	0.00	Thursday, March 23, 2017	86	0.00
Tuesday, January 24, 2017	336	0.00	Friday, February 24, 2017	35	0.00	Friday, March 24, 2017	117	0.31
Wednesday, January 25, 2017	209	0.00	Saturday, February 25, 2017	NR	0.00	Saturday, March 25, 2017	NR	0.00
Thursday, January 26, 2017	145	0.00	Sunday, February 26, 2017	NR	0.48	Sunday, March 26, 2017	NR	0.29
Friday, January 27, 2017	118	0.00	Monday, February 27, 2017	616	0.18	Monday, March 27, 2017	701	0.00
Saturday, January 28, 2017	NR	0.00	Tuesday, February 28, 2017	210	0.00	Tuesday, March 28, 2017	143	0.00
Sunday, January 29, 2017	NR	0.00				Wednesday, March 29, 2017	17	0.54
Monday, January 30, 2017	301	0.00				Thursday, March 30, 2017	309	0.00
Tuesday, January 31, 2017	87	0.00				Friday, March 31, 2017	145	0.00

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20160331/e20170401/myear Daily flow volumes provided by Exide.

NR - Not Recorded

Prepared by: TJG 04/06/2017 Checked by: BEF 04/10/2017 Reviewed by: AMF 04/12/2017 
 Table 2

 Perched and Groundwater Monitoring Well Water Elevations

		Stev	wart Creek Elevat	ions				
Surv	ev Point		Measurement	El	evation			
	-,		Date	(	ft msl)			
Transect 1			- (- )		(00.74			
Top of North Bank			3/7/2016		528.74 624.70			
The of North Bank			3/7/2016		524.79 522.79			
Toe of South Bank			3/7/2016	624.27				
Top of South Bank			3/7/2016		634.09			
Transect 2								
Top of North Bank			3/7/2016		627.97			
Toe of North Bank			3/7/2016		623.57			
Toe of South Bank			3/7/2016		524.04 420.52			
Top of South Bank			3/7/2016		030.02			
Top of North Bank			3/7/2016		528 20			
Toe of North Bank			3/7/2016		522.70			
Toe of South Bank			3/7/2016		622.88			
Top of South Bank			3/7/2016		528.18			
Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation			
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)			
MW-26	631.93	5-15	3/11/2013	9.98	621.95			
(Groundwater)			4/5/2013	9.52	622.41			
			4/29/2013	9.21	622.72			
			1/21/2014	5.80	626.13			
			7/29/2014	5.79	626.14			
			9/23/2014	8.9	623.03			
			6/12/2015	5.32	626.61			
			9/8/2015	5.72	020.21 626.61			
			2/29/2016	5.32	626.52			
			6/1/2016	5.47	626.46			
			9/8/2016	5.51	626.42			
			12/2/2016	5.65	626.28			
			3/2/2017	5.81	626.12			
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43			
(Groundwater)			4/5/2013	6.96	626.55			
			4/29/2013	6.56	626.95			
			1/21/2014	6.62	626.89			
			//29/2014	6.57	626.94			
			9/23/2014 6/12/2015	0.04 5.21	627.47			
			9/8/2015	6.35	627.16			
			12/17/2015	5.67	627.84			
			2/29/2016	5.79	627.72			
			6/1/2016	5.69	627.82			
			9/8/2016	5.67	627.84			
			12/2/2016	6.25	627.26			
104	(0) 74	0.00	3/2/2017	6.51	627.00			
MW-31 (Croundwater)	636.71	8-23	5/13/2013	10.58	626.13			
(Groundwater)			7/20/2014	10.67	625.64			
			9/23/2014	11 32	625.30			
			6/12/2015	9.61	627.10			
			9/8/2015	10.53	626.18			
			12/17/2015	9.42	627.29			
			2/29/2016	9.78	626.93			
			6/1/2016	9.82	626.89			
			9/8/2016	9.90	626.81			
			12/2/2016	10.21	626.50			
MW/-32	630.04	25-5	3/2/2017 1/21/2017	12.23 A 16	024.40 626 80			
(Perched)	030.90	2.0-0	7/29/2014	4.10	626 37			
			9/23/2014	4.59	626.37			
			6/12/2015	3.79	627.17			
			9/8/2015	R	R			
			2/29/2016	3.57	627.39			
			6/1/2016	3.62	627.34			
			9/8/2016	3.83	627.13			
			12/2/2016	3.40	627.56			
			3/2/2017	J.20	027.70			

Table 2 Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98

Notes:

1. bgs - below ground surface. 2. msl - above mean sea level. Prepared by: TJG 04/06/2017 Checked by: BEF 04/06/2017

Reviewed by: AMF 04/12/2017

3. btoc - below top of casing. 4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

#### Table 3 French Drain Water Analytical Data

	Samp	ole ID	Sample ID				
	FD030	217-02	FD030217-02				
	Date Co	ollected	Date Collected				
	3/2/201	7 14:50	3/3/201	7 14:50			
Metals							
Parameter:	Result	Units	Result	Units			
Antimony	NA	mg/L	NA	mg/L			
Arsenic	NA	mg/L	0.005	mg/L			
Barium	NA	mg/L	0.036	mg/L			
Cadmium	NA	mg/L	ND	mg/L			
Chromium	NA	mg/L	0.010	mg/L			
Copper	NA	mg/L	0.0096	mg/L			
Iron	NA	mg/L	ND	mg/L			
Lead	NA	mg/L	0.015	mg/L			
Manganese	NA	mg/L	ND	mg/L			
Nickel	NA	mg/L	ND	mg/L			
Selenium	NA	mg/L	0.0121	mg/L			
Silver	NA	mg/L	ND	mg/L			
Zinc	NA	mg/L	0.009	mg/L			
Mercury	NA	mg/L	ND	mg/L			
General Chemistry							
Parameter:	Result	Units	Result	Units			
Total Suspended Solids	1.8	mg/L	NA	mg/L			
Total Dissolved Solids	1,320	mg/L	NA	mg/L			
Natao		Dremen	and by TIC 04/0/ (2017				

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

3) mg/L - milligrams per liter

Prepared by: TJG 04/06/2017 Checked by: BEF 04/06/2017 Reviewed by: AMF 04/12/2017



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Friday, March 10, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples

Oxidor received 2 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
17030115-001	FD030217-02	Liquid	3/2/2017 14:50	Total Dissolved Solids, Total Suspended Solids
17030115-002	FD030217-02	Liquid	3/3/2017 14:50	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

# Project Name: Raw Grab Samples

Customer Sample ID:	FD03(	0217-02						
Oxidor Sample ID:	17030	115-001			Matrix: L	.iquid		
Sample Received:	3/3/20	)17		Sam	ple Collected: 3	8/2/2017 14:	50	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	20.0	25	1320	) mg/L	03/09/17 16:12	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	1.8	3 mg/L	03/07/17 09:50	SM-2540-D	K.E.L.	J-5





# **Analytical Report**

# Project Name: Raw Grab Samples

Customer Sample ID: Oxidor Sample ID: Sample Received:	<b>FD030</b> 17030 3/3/20	<b>217-02</b> 115-002 17		Sam	Matrix: L ple Collected: 3	iquid /3/2017 14	:50	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 03/06/17 at	08:48							
Arsenic	0.003	0.005	0.005	mg/L	03/06/17 15:48	200.8	M.A.	
Barium	0.003	0.005	0.036	mg/L	03/06/17 15:48	200.8	M.A.	
Cadmium	0.0005	0.001	ND	mg/L	03/06/17 15:48	200.8	M.A.	
Chromium	0.003	0.005	0.010	mg/L	03/06/17 15:48	200.8	M.A.	
Copper	0.0025	0.005	0.0096	mg/L	03/06/17 15:48	200.8	M.A.	
Iron	0.25	0.5	ND	mg/L	03/06/17 15:48	200.8	M.A.	
Lead	0.003	0.005	0.015	mg/L	03/06/17 15:48	200.8	M.A.	
Manganese	0.001	0.002	ND	mg/L	03/06/17 15:48	200.8	M.A.	
Nickel	0.003	0.005	ND	mg/L	03/06/17 15:48	200.8	M.A.	
Selenium	0.0025	0.005	0.0121	mg/L	03/06/17 15:48	200.8	M.A.	
Silver	0.0005	0.001	ND	mg/L	03/06/17 15:48	200.8	M.A.	
Zinc	0.003	0.005	0.009	mg/L	03/06/17 15:48	200.8	M.A.	
Digested by method 245.1 on 03/07/17 at	09:08			-				
Mercury	0.0001	0.0002	ND	mg/L	03/07/17 15:37	245.1	I.Z.	





# Sample Cross Reference

# Project Name: Raw Grab Samples

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD030217-02	17030115-001	Total Dissolved Solids	SM-2540-C	TDS02623_L
		Total Suspended Solids	SM-2540-D	TSS06933_L
FD030217-02	17030115-002	Mercury	245.1	MERC_05937_L
		Zinc	200.8	META_03067_L
		Silver	200.8	META_03067_L
		Selenium	200.8	META_03067_L
		Nickel	200.8	META_03067_L
		Manganese	200.8	META_03067_L
		Lead	200.8	META_03067_L
		Iron	200.8	META_03067_L
		Copper	200.8	META_03067_L
		Chromium	200.8	META_03067_L
		Cadmium	200.8	META_03067_L
		Barium	200.8	META_03067_L
		Arsenic	200.8	META_03067_L





# **QC Summary**

#### Project Name: Raw Grab Samples

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	hID TDS02623_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	980 mg/L		1000 mg/L	98%	90-110%			
LCSD	Total Dissolved Solids	960 mg/L		1000 mg/L	96%	90-110%	2.1%	0-5%	
Replicate	Total Dissolved Solids	1320 mg/L	1320 mg/L	Ũ			0.4%	0-5%	
QCBatch	hID TSS06933_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	441 mg/L		500 mg/L	88%	85-115%			
LCSD	Total Suspended Solids	455 mg/L		500 mg/L	91%	85-115%	3.1%	0-15%	
Replicate	Total Suspended Solids	12.0 mg/L	13.0 mg/L	-			8.0%	0-15%	
QCBatch	hID MERC_05937_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0048 mg/L		0.005 mg/L	95%	85-115%			
LCSD	Mercury	0.0048 mg/L		0.005 mg/L	96%	85-115%	0.0%	0-25%	
MS	Mercury	0.0048 mg/L	ND	0.005 mg/L	96%	80-120%			
MSD	Mercury	0.0047 mg/L	ND	0.005 mg/L	94%	80-120%	2.1%	0-25%	
QCBatch	hID META_03067_L								
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.099 mg/L		0.1 mg/L	99%	85-115%			
	Barium	0.102 mg/L		0.1 mg/L	102%	85-115%			
	Cadmium	0.1011 mg/L		0.1 mg/L	101%	85-115%			
	Chromium	0.101 mg/L		0.1 mg/L	101%	85-115%			
	Copper	0.1011 mg/L		0.1 mg/L	101%	85-115%			
	Iron	10.9 mg/L		10.1 mg/L	108%	85-115%			
	Lead	0.098 mg/L		0.1 mg/L	98%	85-115%			
	Manganese	0.098 mg/L		0.1 mg/L	98%	85-115%			
	Nickel	0.099 mg/L		0.1 mg/L	99%	85-115%			
	Selenium	0.1007 mg/L		0.1 mg/L	101%	85-115%			
	Silver	0.106 mg/L		0.1 mg/L	106%	85-115%			
	Zinc	0.100 mg/L		0.1 mg/L	100%	85-115%			
LCSD	Arsenic	0.101 mg/L		0.1 mg/L	101%	85-115%	2.0%	0-20%	
	Barium	0.104 mg/L		0.1 mg/L	104%	85-115%	1.9%	0-20%	

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# **QC Summary**

#### Project Name: Raw Grab Samples

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flage
QCBatch	ID META_03067_L								
	Cadmium	0.1027 mg/L		0.1 mg/L	103%	85-115%	1.6%	0-20%	
	Chromium	0.101 mg/L		0.1 mg/L	101%	85-115%	0.0%	0-20%	
	Copper	0.1009 mg/L		0.1 mg/L	101%	85-115%	0.2%	0-20%	
	Iron	10.9 mg/L		10.1 mg/L	108%	85-115%	0.0%	0-20%	
	Lead	0.099 mg/L		0.1 mg/L	99%	85-115%	1.0%	0-20%	
	Manganese	0.099 mg/L		0.1 mg/L	99%	85-115%	1.0%	0-20%	
	Nickel	0.099 mg/L		0.1 mg/L	99%	85-115%	0.0%	0-20%	
	Selenium	0.1049 mg/L		0.1 mg/L	105%	85-115%	4.1%	0-20%	
	Silver	0.106 mg/L		0.1 mg/L	106%	85-115%	0.0%	0-20%	
	Zinc	0.101 mg/L		0.1 mg/L	101%	85-115%	1.0%	0-20%	
MS	Arsenic	0.517 mg/L	0.005 mg/L	0.5 mg/L	102%	80-120%			
	Barium	0.528 mg/L	0.019 mg/L	0.5 mg/L	102%	80-120%			
	Cadmium	0.5089 mg/L	0.0010 mg/L	0.5 mg/L	102%	80-120%			
	Chromium	0.513 mg/L	0.001 mg/L	0.5 mg/L	102%	80-120%			
	Copper	0.5180 mg/L	0.008 mg/L	0.5 mg/L	102%	80-120%			
	Iron	54.7 mg/L	0.094 mg/L	50.5 mg/L	108%	80-120%			
	Lead	0.520 mg/L	0.024 mg/L	0.5 mg/L	99%	80-120%			
	Manganese	0.500 mg/L	0.005 mg/L	0.5 mg/L	99%	80-120%			
	Nickel	0.496 mg/L	0.001 mg/L	0.5 mg/L	99%	80-120%			
	Selenium	0.5091 mg/L	0.005 mg/L	0.5 mg/L	101%	80-120%			
	Silver	0.522 mg/L	ND	0.5 mg/L	104%	80-120%			
	Zinc	0.517 mg/L	0.005 mg/L	0.5 mg/L	102%	80-120%			
MSD	Arsenic	0.503 mg/L	0.005 mg/L	0.5 mg/L	100%	80-120%	2.7%	0-20%	
	Barium	0.528 mg/L	0.019 mg/L	0.5 mg/L	102%	80-120%	0.0%	0-20%	
	Cadmium	0.5058 mg/L	0.0010 mg/L	0.5 mg/L	101%	80-120%	0.6%	0-20%	
	Chromium	0.507 mg/L	0.001 mg/L	0.5 mg/L	101%	80-120%	1.2%	0-20%	
	Copper	0.5031 mg/L	0.008 mg/L	0.5 mg/L	99%	80-120%	2.9%	0-20%	
	Iron	55.2 mg/L	0.094 mg/L	50.5 mg/L	109%	80-120%	0.9%	0-20%	
	Lead	0.517 mg/L	0.024 mg/L	0.5 mg/L	99%	80-120%	0.6%	0-20%	
	Manganese	0.492 mg/L	0.005 mg/L	0.5 mg/L	97%	80-120%	1.6%	0-20%	
	Nickel	0.488 mg/L	0.001 mg/L	0.5 mg/L	97%	80-120%	1.6%	0-20%	
	Selenium	0.5024 mg/L	0.005 mg/L	0.5 mg/L	100%	80-120%	1.3%	0-20%	
	Silver	0.526 mg/L	ND	0.5 mg/L	105%	80-120%	0.8%	0-20%	
	Zinc	0.501 mg/L	0.005 mg/L	0.5 mg/L	99%	80-120%	3.1%	0-20%	





# **Case Narrative**

Draiget Names Daw Creh Complete

Project Name.	Raw Grad Samples
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

### Project Name: Raw Grab Samples

Receipt temp: 1 Receipt method: 0 Custody seal intact: 1	1.8 °C on Ice Customer Coui Yes	rier	All sample	es / labels rece	eived intact: <b>Yes</b>			
Customer Sample ID:	FD030217-02		Collected By:	Jose Aceved	0			
Oxidor Sample ID: <b>17030115-001</b>			Collector Affiliation: Exide Technologies					
Collected:	03/02/17 14:50		Matrix: Liquid					
<u>Bottle Түре</u> 1000 mL Pla	<u>Co</u>	unt <u>Collection Method</u> 1 Grab	<u>Parts / Interval</u>	Indicated <u>Preservation</u> Temp	<u>рН</u> -			
Customer Sample ID:	FD030217-02		Collected By:	Jose Aceved	0			
Oxidor Sample ID:	17030115-002		Collector Affiliation: Exide Technologies					
Collected:	03/03/17 14:50		Matrix: Liquid					
<u>Bottle Type</u> 250 mL Plas	tic <u>Co</u>	unt Collection Method 1 Grab	<u>Parts / Interval</u>	Indicated <u>Preservation</u> HNO3	<u>рН</u> <2			

Sample conditions at time of receipt at laboratory verified in part or in whole by:

K.R.





Order ID: 17030115 Date: 3/10/2017 Page 9 of 9

# Documentation

Firth Street

# PROJECT DESCRIPTION: Raw Grab Samples

9.40 m. 45 11:15--ЧЪ AITINI TIME TIME TIME OKIOS None/1 Liter plastid HN03 / 250 ml. plestig PRESERVATION / REMARKS / CONTAINERS ALL SAMPLES COOL ≤ & C Ċ DATE 13/1 1.K°C accurde Acevedo S#C REPRESENTING REPRESENTING REPRESENTING 200120 REPRESENTING: EXIDE Technologies Ň 245 WS - WATER SAMPLES ALTIN J050 mall RECEIVED #Y : (Signature) (Signature SIGNATURE: 14 DATE RECEIVED BY (S) SAMPLER RECEIVED | || G = GRAB CHAIN OF CUSTODY RECORD ulla P.O. Box 250 Frisco, TX 75034 Telephone 972-335-2121 3 ŝ Ģ μĮ ģ Facsimile 972-377-270 <u>0</u> Secondary NoY Yo AS, CA, CJ, MA, N1, N9 Fe, B4, CY, PD, H9, Se FC = FLOW WEIGHTED COMPOSITE (96 PARTS) T05.T55 . ANALYSES REQUESTED 9.40 am くもく NATURE OF INDUSTRY: Smelting exide TIME TIME TME WS 3-3-17 G OUTFALL: ADDRESS: 7471 Fifth Street Fisco, Texas 75034 INDUSTRY REPRESENTATIVE(S) B) 119 K1 ng @ CLIDC.CCM DATE ٢ DATE SAMPL E TYPE Billy King ¢ Θ c Ø Ο USE WASTE WATER REPORT FORMAT 0 pm. REPRESENTING EXIDE ы Д REPRESENTING TIME (S) 2:50 000 E-MAIL RESULTS TO: 2 Raw Grab Samples \*\* TC = TIME COMPOSITE (96PARTS) a cereda RELINQUISHED BY : (Signature) RELINQUISHED BY : (Signature **RELINOUISHED BY : (Signature** 5 211 INDUSTRY: EXIDE Technologies DATE (S) Lenin 5 \_\_\_\_ بن FIELD INFORMATION: 3 U1030(1) FD030217-02 FDC30217-02 SAMPLE No. / IDENTIFICAT FON 24 Sm -601

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227



August 21, 2017

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2017 SECOND QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the second quarter of 2017. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

# 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating parea was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the second quarter of 2017 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.

1302086



- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the second quarter 2017 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the second quarter of 2017.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

# 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear).

#### 3.2 **Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the second quarter of 2017. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in first quarter 2017 with some wells having a slight decrease in water level while others had a slight increase.

# 3.3 Floodwall Seepage

At the time of the wall inspection on May 4, 2017 no seepage from the flood wall was observed. The flood wall waterstops and joint fillers were generally in good condition. No major cracks were observed.

# 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on May 4, 2017. As such, no samples of white crystalline material were collected or analyzed.

# 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the second quarter of 2017. Analytical results from these samples are included in Table 3 and Attachment A.



#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the second quarter of 2017 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

# 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Butt Fortus

Brett Forthaus Environmental Engineer

Anne Fauth - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

LRoot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

**BEF/AMF/FMB** 



Apr-17			May-17			Jun-17		
Total Flow (gal) Total Precip (in)		Total Flow (gal) F		Total Precip (in)	Total Flow (gal)		Total Precip (in)	
948		3.49	492		0.54	1,313		5.05
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Saturday, April 01, 2017	NR	0.00	Monday, May 01, 2017	46	0.00	Thursday, June 01, 2017	5	0.06
Sunday, April 02, 2017	NR	1.06	Tuesday, May 02, 2017	10	0.00	Friday, June 02, 2017	8	1.65
Monday, April 03, 2017	103	0.00	Wednesday, May 03, 2017	15	0.00	Saturday, June 03, 2017	NR	0.32
Tuesday, April 04, 2017	30	0.00	Thursday, May 04, 2017	15	0.00	Sunday, June 04, 2017	NR	0.00
Wednesday, April 05, 2017	25	0.02	Friday, May 05, 2017	14	0.00	Monday, June 05, 2017	282	0.15
Thursday, April 06, 2017	16	0.00	Saturday, May 06, 2017	NR	0.00	Tuesday, June 06, 2017	35	0.01
Friday, April 07, 2017	17	0.01	Sunday, May 07, 2017	NR	0.00	Wednesday, June 07, 2017	24	0.00
Saturday, April 08, 2017	NR	0.00	Monday, May 08, 2017	24	0.00	Thursday, June 08, 2017	27	0.00
Sunday, April 09, 2017	NR	0.00	Tuesday, May 09, 2017	9	0.00	Friday, June 09, 2017	63	0.99
Monday, April 10, 2017	31	0.79	Wednesday, May 10, 2017	9	0.00	Saturday, June 10, 2017	NR	0.00
Tuesday, April 11, 2017	259	0.57	Thursday, May 11, 2017	9	0.00	Sunday, June 11, 2017	NR	0.00
Wednesday, April 12, 2017	42	0.00	Friday, May 12, 2017	5	0.00	Monday, June 12, 2017	93	0.00
Thursday, April 13, 2017	30	0.00	Saturday, May 13, 2017	NR	0.00	Tuesday, June 13, 2017	31	0.00
Friday, April 14, 2017	NR	0.00	Sunday, May 14, 2017	NR	0.00	Wednesday, June 14, 2017	NR	0.00
Saturday, April 15, 2017	NR	0.00	Monday, May 15, 2017	17	0.00	Thursday, June 15, 2017	69	0.00
Sunday, April 16, 2017	NR	0.00	Tuesday, May 16, 2017	5	0.00	Friday, June 16, 2017	16	0.00
Monday, April 17, 2017	65	0.21	Wednesday, May 17, 2017	22	0.12	Saturday, June 17, 2017	NR	0.00
Tuesday, April 18, 2017	58	0.00	Thursday, May 18, 2017	7	0.00	Sunday, June 18, 2017	NR	0.00
Wednesday, April 19, 2017	35	0.00	Friday, May 19, 2017	18	0.00	Monday, June 19, 2017	51	0.02
Thursday, April 20, 2017	19	0.00	Saturday, May 20, 2017	NR	0.05	Tuesday, June 20, 2017	43	0.00
Friday, April 21, 2017	16	0.31	Sunday, May 21, 2017	NR	0.03	Wednesday, June 21, 2017	35	0.00
Saturday, April 22, 2017	NR	0.00	Monday, May 22, 2017	107	0.12	Thursday, June 22, 2017	22	0.00
Sunday, April 23, 2017	NR	0.00	Tuesday, May 23, 2017	30	0.13	Friday, June 23, 2017	78	0.00
Monday, April 24, 2017	102	0.00	Wednesday, May 24, 2017	28	0.00	Saturday, June 24, 2017	NR	1.72
Tuesday, April 25, 2017	18	0.00	Thursday, May 25, 2017	29	0.00	Sunday, June 25, 2017	NR	0.00
Wednesday, April 26, 2017	21	0.18	Friday, May 26, 2017	17	0.00	Monday, June 26, 2017	255	0.00
Thursday, April 27, 2017	39	0.00	Saturday, May 27, 2017	NR	0.00	Tuesday, June 27, 2017	54	0.13

NR

NR

44

12

0.09

0.00

0.00

0.00

Wednesday, June 28, 2017

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Thursday, June 29, 2017

Friday, June 30, 2017

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear

22

NR

NR

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0.00

0.32

0.02

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Sunday, May 28, 2017

Monday, May 29, 2017

Tuesday, May 30, 2017

Wednesday, May 31, 2017

Daily flow volumes provided by Exide.

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NR - Not Recorded

Friday, April 28, 2017

Saturday, April 29, 2017

Sunday, April 30, 2017

Prepared by: KRK 07/17/2017 Checked by: BCW 07/20/2017 Reviewed by: AMF/FMB 8/20/2017

46

44

32

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0.00

0.00

0.00

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		Ste	wart Creek Elevat	ions		
Surv	yoy Point		Measurement	EI	evation	
Survey Form			Date	(	ft msl)	
Transect 1						
Top of North Bank			3/7/2016		628.74	
Toe of North Bank			3/7/2016		624.79	
Creek Centerline			3/7/2016		622.79	
Toe of South Bank			3/7/2016		624.27	
Top of South Bank			3/7/2016		634.09	
Transect 2				-		
Top of North Bank			3/7/2016		627.97	
Toe of North Bank			3/7/2016		623.57	
Toe of South Bank			3/7/2016		624.04	
Top of South Bank			3/7/2016		630.52	
Transect 3						
Top of North Bank			3/7/2016	628.20		
Toe of North Bank			3/7/2016	622.70		
Toe of South Bank			3/7/2016		622.88	
Top of South Bank			3/7/2016	628.18		
Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation	
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)	
MW-26	631.93	5-15	3/11/2013	9.98	621.95	
(Groundwater)			4/5/2013	9.52	622.41	
			4/29/2013	9.21	622.72	
			1/21/2014	5.80	626.13	
			7/29/2014	5.79	626.14	
			9/23/2014	8.9	623.03	
			6/12/2015	5.32	626.61	
			9/8/2015	5.72	626.21	
			9/8/2015 12/17/2015	5.72 5.32	626.21 626.61	
			9/8/2015 12/17/2015 2/29/2016	5.72 5.32 5.41	626.21 626.61 626.52	
			9/8/2015 12/17/2015 2/29/2016 6/1/2016	5.72 5.32 5.41 5.47	626.21 626.61 626.52 626.46	
			9/8/2015 12/17/2015 2/29/2016 6/1/2016 9/8/2016	5.72 5.32 5.41 5.47 5.51	626.21 626.61 626.52 626.46 626.42	
			9/8/2015 12/17/2015 2/29/2016 6/1/2016 9/8/2016 12/2/2016	5.72 5.32 5.41 5.47 5.51 5.65	626.21 626.61 626.52 626.46 626.42 626.28	
			9/8/2015 12/17/2015 2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017	5.72 5.32 5.41 5.47 5.51 5.65 5.81	626.21 626.61 626.52 626.46 626.42 626.28 626.12	

1302086

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43
(Groundwater)			4/5/2013	6.96	626.55
			4/29/2013	6.56	626.95
			1/21/2014	6.62	626.89
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
			9/8/2015	6.35	627.16
			12/17/2015	5.67	627.84
			2/29/2016	5.79	627.72
			6/1/2016	5.69	627.82
			9/8/2016	5.67	627.84
			12/2/2016	6.25	627.26
			3/2/2017	6.51	627.00
			5/4/2017	5.80	627.71
MW-31	636.71	8-23	5/13/2013	10.58	626.13
(Groundwater)			1/21/2014	10.87	625.84
			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
			9/8/2015	10.53	626.18
			12/17/2015	9.42	627.29
			2/29/2016	9.78	626.93
			6/1/2016	9.82	626.89
			9/8/2016	9.90	626.81
			12/2/2016	10.21	626.50
			3/2/2017	12.23	624.48
			5/4/2017	10.58	626.13
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
(Perched)			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47

	TOC	Screen	Measurement	Depth to	Groundwater Elevation
weilTD	(ft msl)	(ft bas)	Date	(ft btoc)	(ft msl)
MW-33	632 59	2 5-5	1/21/2014	1 09	631.50
(Perched)	002107	2.0 0	7/29/2014	2.14	630.45
(			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
			5/4/2017	0.91	631.68
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
	(20.00	10.00	5/4/2017	4.58	627.97
WW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			//29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015 2/20/2014	4.1/ E 22	020.81
			2/29/2010	5.23 E 20	020.70
			0/1/2010	5.3U 5.41	020.00 625.57
			7/0/2010 12/2/2014	0.41 1 04	626.02
			2/2/2010	4.70 5.00	625.02
			5/2/2017	5.00	020.90 625.40
			5/4/2017	5.50	020.48

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation		
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)		
Notes:							
1. bgs - below groun	d surface.			Pre	pared by: KRK 07/18/2017		
2. msl - above mean	sea level.			Che	cked by: BCW 07/20/2017		
3. btoc - below top of casing. Rev					d by: AMF/FMB 08/20/2017		
4. R - depth to grour	4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth						
of the well.							

#### Table 3 **French Drain Water Analytical Data**

	Samp	ole ID	Sample ID				
	FD050	217-02	FD0502	217-02			
	Labora	tory ID	Labora	tory ID			
	170500	46-001	170500	46-002			
	Date Co	ollected	Date Co	ollected			
	5/2/20	17 9:30	5/2/201	17 9:30			
Metals							
Parameter:	Result	Units	Result	Units			
Antimony	NA	mg/L	NA	mg/L			
Arsenic	NA	mg/L	0.004	mg/L			
Barium	NA	mg/L	0.058	mg/L			
Cadmium	NA	mg/L	0.0006	mg/L			
Chromium	NA	mg/L	0.012	mg/L			
Copper	NA	mg/L	0.0100	mg/L			
Iron	NA	mg/L	0.30	mg/L			
Lead	NA	mg/L	0.022	mg/L			
Manganese	NA	mg/L	0.002	mg/L			
Nickel	NA	mg/L	0.003	mg/L			
Selenium	NA	mg/L	0.0126	mg/L			
Silver	NA	mg/L	ND	mg/L			
Zinc	NA	mg/L	0.020	mg/L			
Mercury	NA	mg/L	ND	mg/L			
General Chemistry							
Parameter:	Result	Units	Result	Units			
Total Suspended Solids	ND	mg/L	NA	mg/L			
Total Dissolved Solids	1,170	mg/L	NA	mg/L			
Notes:		Notes: Prepared by: KRK 07/18/201					

Checked by: BCW 07/20/2017

Reviewed by: AMF/FMB 08/20/2017

Notes:

1) NA - Not Analyzed

2) ND - Not Detected
 3) mg/L - milligrams per liter



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Wednesday, May 10, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Grab Samples Quarterly

Oxidor received 2 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	Matrix	Collected	Analysis
17050046-001	FD050217-02	Liquid	5/2/2017 09:30	Total Dissolved Solids, Total Suspended Solids
17050046-002	FD050217-02	Liquid	5/2/2017 09:30	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

Customer Sample ID:	FD050	)217-02							
Oxidor Sample ID:	17050	046-001			Matrix: L	iquid			
Sample Received:	5/2/20	5/2/2017		Sample Collected: 5/2/2017 09:30					
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags	
General Chemistry									
Total Dissolved Solids	20.0	25	117	<b>0</b> mg/L	05/08/17 16:45	SM-2540-C	K.E.L.		
Total Suspended Solids	1.0	5	N	D mg/L	05/03/17 11:05	SM-2540-D	K.E.L.		





# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD050 17050 5/2/20	<b>217-02</b> 046-002 17	Matrix: Liquid Sample Collected: 5/2/2017 09:30					
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals					-		-	-
Digested by method 200.8 on 05/03/17 at	08:31							
Arsenic	0.003	0.005	0.004	mg/L	05/03/17 16:56	200.8	M.A.	J-5
Barium	0.003	0.005	0.058	mg/L	05/03/17 16:56	200.8	M.A.	
Cadmium	0.0005	0.001	0.0006	mg/L	05/03/17 16:56	200.8	M.A.	J-5
Chromium	0.003	0.005	0.012	mg/L	05/03/17 16:56	200.8	M.A.	
Copper	0.0025	0.005	0.0100	mg/L	05/03/17 16:56	200.8	M.A.	
Iron	0.25	0.5	0.30	mg/L	05/03/17 16:56	200.8	M.A.	J-5
Lead	0.003	0.005	0.022	mg/L	05/03/17 16:56	200.8	M.A.	
Manganese	0.001	0.002	0.002	mg/L	05/03/17 16:56	200.8	M.A.	
Nickel	0.003	0.005	0.003	mg/L	05/03/17 16:56	200.8	M.A.	J-5
Selenium	0.0025	0.005	0.0126	mg/L	05/03/17 16:56	200.8	M.A.	
Silver	0.001	0.001	ND	mg/L	05/03/17 16:56	200.8	M.A.	
Zinc	0.003	0.005	0.020	mg/L	05/03/17 16:56	200.8	M.A.	
Digested by method 245.1 on 05/03/17 at	09:00							
Mercury	0.0001	0.0002	ND	mg/L	05/03/17 15:07	245.1	G.B.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD050217-02	17050046-001	Total Dissolved Solids	SM-2540-C	TDS_04723_L
		Total Suspended Solids	SM-2540-D	TSS02334_L
FD050217-02	17050046-002	Mercury	245.1	MERC_01838_L
		Zinc	200.8	META_00968_L
		Silver	200.8	META_00968_L
		Selenium	200.8	META_00968_L
		Nickel	200.8	META_00968_L
		Manganese	200.8	META_00968_L
		Lead	200.8	META_00968_L
		Iron	200.8	META_00968_L
		Copper	200.8	META_00968_L
		Chromium	200.8	META_00968_L
		Cadmium	200.8	META_00968_L
		Barium	200.8	META_00968_L
		Arsenic	200.8	META_00968_L





# **QC Summary**

#### Project Name: Grab Samples Quarterly

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID TDS04723_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	910 mg/L		1000 mg/L	91%	90-110%			
LCSD	Total Dissolved Solids	940 mg/L		1000 mg/L	94%	90-110%	3.2%	0-5%	
Replicate	Total Dissolved Solids	2850 mg/L	2910 mg/L	-			2.1%	0-5%	
QCBatc	hID								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	479 mg/L		500 mg/L	96%	85-115%			
LCSD	Total Suspended Solids	481 mg/L		500 mg/L	96%	85-115%	0.4%	0-15%	
Replicate	Total Suspended Solids	82.0 mg/L	84.0 mg/L	-			2.4%	0-15%	
QCBatc	hID MERC_01838_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0047 mg/L		0.005 mg/L	95%	85-115%			
LCSD	Mercury	0.0046 mg/L		0.005 mg/L	93%	85-115%	1.3%	0-25%	
MS	Mercury	0.0047 mg/L	ND	0.005 mg/L	94%	80-120%			
MSD	Mercury	0.0047 mg/L	ND	0.005 mg/L	94%	80-120%	0.2%	0-25%	
QCBatc	hID META_00968_L								
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.495 mg/L		0.5 mg/L	99%	85-115%			
	Barium	0.515 mg/L		0.5 mg/L	103%	85-115%			
	Cadmium	0.5098 mg/L		0.5 mg/L	102%	85-115%			
	Chromium	0.518 mg/L		0.5 mg/L	104%	85-115%			
	Copper	0.5093 mg/L		0.5 mg/L	102%	85-115%			
	Iron	51.8 mg/L		50.5 mg/L	103%	85-115%			
	Lead	0.493 mg/L		0.5 mg/L	99%	85-115%			
	Manganese	0.486 mg/L		0.5 mg/L	97%	85-115%			
	Nickel	0.509 mg/L		0.5 mg/L	102%	85-115%			
	Selenium	0.5245 mg/L		0.5 mg/L	105%	85-115%			
	Silver	0.524 mg/L		0.5 mg/L	105%	85-115%			
	Zinc	0.511 mg/L		0.5 mg/L	102%	85-115%			
LCSD	Arsenic	0.494 mg/L		0.5 mg/L	99%	85-115%	0.2%	0-20%	
	Barium	0.530 mg/L		0.5 mg/L	106%	85-115%	2.9%	0-20%	

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227





# **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_00968_L								
	Cadmium	0.5107 mg/L		0.5 mg/L	102%	85-115%	0.2%	0-20%	
	Chromium	0.513 mg/L		0.5 mg/L	103%	85-115%	1.0%	0-20%	
	Copper	0.5018 mg/L		0.5 mg/L	100%	85-115%	1.5%	0-20%	
	Iron	50.6 mg/L		50.5 mg/L	100%	85-115%	2.3%	0-20%	
	Lead	0.503 mg/L		0.5 mg/L	101%	85-115%	2.0%	0-20%	
	Manganese	0.486 mg/L		0.5 mg/L	97%	85-115%	0.0%	0-20%	
	Nickel	0.510 mg/L		0.5 mg/L	102%	85-115%	0.2%	0-20%	
	Selenium	0.5307 mg/L		0.5 mg/L	106%	85-115%	1.2%	0-20%	
	Silver	0.523 mg/L		0.5 mg/L	105%	85-115%	0.2%	0-20%	
	Zinc	0.507 mg/L		0.5 mg/L	101%	85-115%	0.8%	0-20%	
MS	Arsenic	0.491 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%			
	Barium	0.544 mg/L	0.017 mg/L	0.5 mg/L	105%	80-120%			
	Cadmium	0.5130 mg/L	ND	0.5 mg/L	103%	80-120%			
	Chromium	0.503 mg/L	0.006 mg/L	0.5 mg/L	99%	80-120%			
	Copper	0.5272 mg/L	0.005 mg/L	0.5 mg/L	104%	80-120%			
	Iron	50.1 mg/L	0.87 mg/L	50.5 mg/L	98%	80-120%			
	Lead	0.502 mg/L	0.001 mg/L	0.5 mg/L	100%	80-120%			
	Manganese	0.495 mg/L	0.018 mg/L	0.5 mg/L	95%	80-120%			
	Nickel	0.504 mg/L	0.004 mg/L	0.5 mg/L	100%	80-120%			
	Selenium	0.5177 mg/L	0.001 mg/L	0.5 mg/L	103%	80-120%			
	Silver	0.524 mg/L	ND	0.5 mg/L	105%	80-120%			
	Zinc	0.686 mg/L	0.198 mg/L	0.5 mg/L	98%	80-120%			
MSD	Arsenic	0.489 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%	0.4%	0-20%	
	Barium	0.525 mg/L	0.017 mg/L	0.5 mg/L	102%	80-120%	3.6%	0-20%	
	Cadmium	0.5051 mg/L	ND	0.5 mg/L	101%	80-120%	1.6%	0-20%	
	Chromium	0.512 mg/L	0.006 mg/L	0.5 mg/L	101%	80-120%	1.8%	0-20%	
	Copper	0.5024 mg/L	0.005 mg/L	0.5 mg/L	100%	80-120%	4.8%	0-20%	
	Iron	50.9 mg/L	0.87 mg/L	50.5 mg/L	99%	80-120%	1.6%	0-20%	
	Lead	0.493 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%	1.8%	0-20%	
	Manganese	0.497 mg/L	0.018 mg/L	0.5 mg/L	96%	80-120%	0.4%	0-20%	
	Nickel	0.503 mg/L	0.004 mg/L	0.5 mg/L	100%	80-120%	0.2%	0-20%	
	Selenium	0.5200 mg/L	0.001 mg/L	0.5 mg/L	104%	80-120%	0.4%	0-20%	
	Silver	0.528 mg/L	ND	0.5 mg/L	106%	80-120%	0.8%	0-20%	
	Zinc	0.688 mg/L	0.198 mg/L	0.5 mg/L	98%	80-120%	0.3%	0-20%	





# **Case Narrative**

Droject Names Creh Complee Quertarly

Project Name.	Grab Samples Quarterly
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

#### Project Name: Grab Samples Quarterly

Receipt temp: <b>1.3 °C or</b> Receipt method: <b>Custome</b> Custody seal intact: <b>Yes</b>	n Ice er Courier		All sample	es / labels rece	eived intact: <b>Yes</b>			
Customer Sample ID: FD0502	17-02		Collected By: Jose Acevede					
Oxidor Sample ID: 1705004 Collected: 05/02/17	6-001	Collector Affiliation: Exide Technologies Matrix: Liquid						
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	<u>рН</u>			
1000 mL Plastic	1	Grab		Temp	-			
Customer Sample ID: FD0502	17-02		Collected By: Jose Acevedo					
Oxidor Sample ID: 1705004	6-002		Collector Affiliation: Exide Technologies					
Collected: 05/02/17	Matrix: Liquid							
Bottle Type	<u>Count</u>	Collection Method	<u>Parts / Interval</u>	Indicated <u>Preservation</u>	рH			

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





Order ID: 17050046 Date: 5/10/2017 Page 9 of 9

# Documentation

Samples .

PROJECT DESCRIPTION: Grab Samples Quarterly

3:05 Ŕ 1 INTIALS TIME b J o None/1 Liter plastig H No3/250ml. plastic 4  $\sim$ PRESERVATION/ REMARKS/CONTAINERS accuell X0) 10) Jose Acevedo TY Jer INITIALS REPRESENTING: EXIDE Tech SIGNATORE: TIME DATE SAMELER: Tdephone 972-377-2701 EXIDE CHAIN OF CUSTODY RECORD o v v H exide. Com AS, Cd, CU, MN, NI, HG FeyDar Cr, PD Hgse TECHNOLOGIES 755 1:45 pm WS-GP ANALYSES REQUESTED 0 G = GRABń 105 5-2-17 ଡ NATURE OF INDUSTRY: 37.46 FC = FLOW WEIGHTED COMPOSITE Billy King @ exide. Com SAMPLE TYPE \*\* U OUTFALL Quarterly EXIDE 9:30 am 9:30 am. TIME (S) E-MAIL RESULTS TO 7471 Fifth Surcet Fridoo, Teans 75034 REPHOSERYTATIVE (9): D171[Y King FIELD INFORMATION: Grab samples 5 12/17 5/2/17 DATE (S) \*\* TC = TIME COMPOSITE NDUSTRY: BXIDE Technols FD050217-02 FD050217-02 DENTIFICATION SAMPLE No. 1705046 200 100



November 30, 2017

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2017 THIRD QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the third quarter of 2017. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

# 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating parea was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the third quarter of 2017 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.

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- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the third quarter 2017 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the third quarter of 2017.

A more detailed description of the results of data collection activities and inspections is included in Section 3 below.

# 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/ personal-weather-station/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear).

#### 3.2 **Groundwater and Perched Water Level Observations**

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the third quarter of 2017. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in second quarter 2017 with some wells having a slight decrease in water level while others had a slight increase.

# 3.3 Floodwall Seepage

At the time of the wall inspection on August 28, 2017 cracks were observed at the apex of the floodwall. Exide was notified of the damage and repairs were made as needed. No seepage from the floodwall was observed. The floodwall waterstops and joint fillers were generally in good condition and no major cracks were observed with the exception as noted above.

# 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on August 28, 2017. As such, no samples of white crystalline material were collected or analyzed.

# 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the third quarter of 2017. Analytical results from these samples are included in Table 3 and Attachment A.



#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the third quarter of 2017 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

# 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Emily White

Emily White Staff Geological Engineer

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

EPW/AMF/FMB

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Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer



#### Table 1 French Drain Daily Flow Volumes

Jul-17			Aug-17			Sep-17		
Total Flow (gal) Pro		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
21,130		3.96	19,180		4.61	4,040		0.25
Date	Daily Flow (gal)	Daily Precip (in)	Date Daily Flow (gal)		Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Saturday, July 01, 2017	NR	0.78	Tuesday, August 01, 2017	70	0.52	Friday, September 01, 2017	350	0.00
Sunday, July 02, 2017	NR	0.00	Wednesday, August 02, 2017	1,390	0.02	Saturday, September 02, 2017	NR	0.00
Monday, July 03, 2017	1,530	0.02	Thursday, August 03, 2017	910	0.00	Sunday, September 03, 2017	NR	0.00
Tuesday, July 04, 2017	NR	0.87	Friday, August 04, 2017	730	0.00	Monday, September 04, 2017	NR	0.00
Wednesday, July 05, 2017	1,120	0.25	Saturday, August 05, 2017	NR	0.00	Tuesday, September 05, 2017	270	0.00
Thursday, July 06, 2017	5,940	0.00	Sunday, August 06, 2017	NR	0.05	Wednesday, September 06, 2017	50	0.00
Friday, July 07, 2017	1,150	0.00	Monday, August 07, 2017	1,540	0.00	Thursday, September 07, 2017	60	0.00
Saturday, July 08, 2017	NR	0.00	Tuesday, August 08, 2017	260	0.00	Friday, September 08, 2017	60	0.00
Sunday, July 09, 2017	NR	0.12	Wednesday, August 09, 2017	410	0.00	Saturday, September 09, 2017	NR	0.00
Monday, July 10, 2017	1,340	0.00	Thursday, August 10, 2017	660	0.00	Sunday, September 10, 2017	NR	0.00
Tuesday, July 11, 2017	290	0.00	Friday, August 11, 2017	500	0.00	Monday, September 11, 2017	180	0.00
Wednesday, July 12, 2017	200	0.00	Saturday, August 12, 2017	NR	0.92	Tuesday, September 12, 2017	40	0.00
Thursday, July 13, 2017	290	0.00	Sunday, August 13, 2017	NR	0.59	Wednesday, September 13, 2017	40	0.00
Friday, July 14, 2017	210	0.00	Monday, August 14, 2017	2,020	0.34	Thursday, September 14, 2017	60	0.00
Saturday, July 15, 2017	NR	0.23	Tuesday, August 15, 2017	530	0.00	Friday, September 15, 2017	50	0.00
Sunday, July 16, 2017	NR	0.00	Wednesday, August 16, 2017	380	0.00	Saturday, September 16, 2017	NR	0.00
Monday, July 17, 2017	1,200	0.00	Thursday, August 17, 2017	2,540	1.63	Sunday, September 17, 2017	NR	0.00
Tuesday, July 18, 2017	850	0.00	Friday, August 18, 2017	710	0.01	Monday, September 18, 2017	80	0.00
Wednesday, July 19, 2017	800	0.00	Saturday, August 19, 2017	NR	0.00	Tuesday, September 19, 2017	50	0.08
Thursday, July 20, 2017	760	0.00	Sunday, August 20, 2017	NR	0.00	Wednesday, September 20, 2017	550	0.01
Friday, July 21, 2017	730	0.00	Monday, August 21, 2017	1,000	0.00	Thursday, September 21, 2017	70	0.00
Saturday, July 22, 2017	NR	0.00	Tuesday, August 22, 2017	160	0.00	Friday, September 22, 2017	50	0.00
Sunday, July 23, 2017	NR	1.43	Wednesday, August 23, 2017	940	0.06	Saturday, September 23, 2017	NR	0.00
Monday, July 24, 2017	2,410	0.26	Thursday, August 24, 2017	1,110	0.36	Sunday, September 24, 2017	NR	0.00
Tuesday, July 25, 2017	700	0.00	Friday, August 25, 2017	510	0.00	Monday, September 25, 2017	70	0.00
Wednesday, July 26, 2017	810	0.00	Saturday, August 26, 2017	NR	0.09	Tuesday, September 26, 2017	630	0.00
Thursday, July 27, 2017	480	0.00	Sunday, August 27, 2017	NR	0.02	Wednesday, September 27, 2017	50	0.01
Friday, July 28, 2017	110	0.00	Monday, August 28, 2017	1,180	0.00	Thursday, September 28, 2017	500	0.05
Saturday, July 29, 2017	NR	0.00	Tuesday, August 29, 2017	520	0.00	Friday, September 29, 2017	830	0.10
Sunday, July 30, 2017	NR	0.00	Wednesday, August 30, 2017	800	0.00	Saturday, September 30, 2017	NR	0.00
Monday, July 31, 2017	210	0.00	Thursday, August 31, 2017	310	0.00		-	-

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear Daily flow volumes provided by Exide. NR - Not Recorded Prepared by: BCW 10/16/2017 Checked by: EPW 10/25/2017 Reviewed by: AMF 11/02/2017

Stewart Creek Elevations								
Surv	ey Point		Measurement	El	evation			
Tropport 1			Date	(	rt msi)			
Top of North Bank			2/7/2014		628 74			
Toe of North Bank			3/7/2016		526.74 524 79			
Creek Centerline			3/7/2016		622.79			
Toe of South Bank			3/7/2016	(	624.27			
Top of South Bank			3/7/2016	(	634.09			
Transect 2								
Top of North Bank			3/7/2016		627.97			
Toe of South Bank			3/7/2016		525.57 624 04			
Top of South Bank			3/7/2016		630.52			
Transect 3								
Top of North Bank			3/7/2016		628.20			
Toe of North Bank			3/7/2016		622.70			
Toe of South Bank			3/7/2016		622.88			
TOP OF SOULD BANK	TOO	<b>C</b>	3/7/2016	Double to	028.18			
Well ID	Elevation	Interval	Measurement	Groundwater	Elevation			
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)			
MW-26	631.93	5-15	3/11/2013	9.98	621.95			
(Groundwater)			4/5/2013	9.52	622.41			
			4/29/2013	9.21	622.72			
			1/21/2014	5.80	626.13			
			//29/2014	5.79	626.14			
			9/23/2014 6/12/2015	0.9 5 32	623.03 626.61			
			9/8/2015	5.72	626.21			
			12/17/2015	5.32	626.61			
			2/29/2016	5.41	626.52			
			6/1/2016	5.47	626.46			
			9/8/2016	5.51	626.42			
			3/2/2010	5.05 5.81	020.20 626.12			
			5/4/2017	6.21	625 72			
			8/28/2017	5.56	626.37			
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43			
(Groundwater)			4/5/2013	6.96	626.55			
			4/29/2013	6.56	626.95			
			1/21/2014	6.62 6.57	626.89 626.04			
			9/23/2014	6.04	627.47			
			6/12/2015	5.21	628.30			
			9/8/2015	6.35	627.16			
			12/17/2015	5.67	627.84			
			2/29/2016	5.79	627.72			
			6/1/2016	5.69	627.82			
			12/2/2016	6.25	627.04			
			3/2/2017	6.51	627.00			
			5/4/2017	5.80	627.71			
			8/28/2017	5.90	627.61			
MW-31	636.71	8-23	5/13/2013	10.58	626.13			
(Groundwater)			1/21/2014	10.87	625.84			
			7/29/2014 9/23/2014	10.81	625.90 625.30			
			6/12/2015	9,61	627.10			
			9/8/2015	10.53	626.18			
			12/17/2015	9.42	627.29			
			2/29/2016	9.78	626.93			
			6/1/2016	9.82	626.89			
			9/8/2016	9.90	020.81 626 50			
			3/2/2010	10.21	624.30			
			5/4/2017	10.58	626.13			
			8/28/2017	9.99	626.72			

Well ID	TOC	Screen	Measurement	Depth to	Groundwater
weirid	(ft msl)	(ft bas)	Date	(ft btoc)	(ft msl)
M\N/_32	630.96	2 5-5	1/21/2014	4 16	626.80
(Perched)	030.70	2.3-5	7/29/2014	4.10	626.30
(i ci ci ci cu)			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	031./1
			0/10/2017 0/20/2017	0.91	031.00
	422.02	255	0/20/2017	0.00	631.73
(Derchod)	032.03	2.5-5	7/20/2014	4.31	020.32
(Percheu)			0/23/2014	4.45	628.38
			6/12/2015	3 42	629.41
			12/17/2015	3.42	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2010	3.85	628.70
			5/2/2017	3.94	020.01 627.07
			9/29/2017	4.50	629.30
MM/_46	630.98	10-20	1/21/2014	5.21	625.37
(Groundwater)	030.70	10-20	7/20/2014	5.47	625.77
(Croundwater)			9/23/2014	5.08	625.90
			6/12/2015	5.50	625 48
			9/8/2015	4,17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
Notes					

les:

Prepared by: BCW 10/17/2017 Checked by: EPW 10/25/2017

Reviewed by: AMF 11/02/2017

 1. bgs - below ground surface.
 Prepared by: BCW 10/1

 2. msl - above mean sea level.
 Checked by: EPW 10/2

 3. btoc - below top of casing.
 Reviewed by: AMF 11/0

 4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth

of the well.

#### Table 3 **French Drain Water Analytical Data**

	Samp	ole ID	Samp	le ID	
	FD071	317-01	FD071	FD071317-02	
	Labora	tory ID	Labora	Laboratory ID	
	170703	48-001	170703	48-002	
	Date Co	ollected	Date Co	ollected	
	7/13/20	17 9:00	7/13/20	17 9:00	
Metals			-		
Parameter:	Result	Units	Result	Units	
Arsenic	NA	mg/L	0.006	mg/L	
Barium	NA	mg/L	0.081	mg/L	
Cadmium	NA	mg/L	0.0015	mg/L	
Chromium	NA	mg/L	0.011	mg/L	
Copper	NA	mg/L	0.0103	mg/L	
Iron	NA	mg/L	0.33 J-5	mg/L	
Lead	NA	mg/L	0.024	mg/L	
Manganese	NA	mg/L	0.003	mg/L	
Nickel	NA	mg/L	0.003 J-5	mg/L	
Selenium	NA	mg/L	0.0099	mg/L	
Silver	NA	mg/L	0.001	mg/L	
Zinc	NA	mg/L	0.026	mg/L	
Mercury	NA	mg/L	ND	mg/L	
General Chemistry					
Parameter:	Result	Units	Result	Units	
Total Suspended Solids	1.4 J-5	mg/L	NA	mg/L	
Total Dissolved Solids	1,020	mg/L	NA	mg/L	

1302086

Notes:

1) NA - Not Analyzed

Prepared by: BCW 10/17/2017 Checked by: EPW 10/25/2017 Reviewed by: AMF 11/02/2017

2) ND - Not Detected

3) mg/L - milligrams per liter
4) J-5 - The associated concentratioin is an estimated value detected between the Sample Detection Limit (SDL) and the adjusted Method Quantitation Limit (MQL).



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Order ID: 17070348 Date: 7/21/2017 Page 1 of 16

Friday, July 21, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

Sample	Sample ID	Matrix	Collected	Analysis
17070348-001	FD071317-01	Liquid	7/13/2017 09:00	Total Dissolved Solids, Total Suspended Solids
17070348-002	FD071317-02	Liquid	7/13/2017 09:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
17070348-003	SO071317-01	Liquid	7/13/2017 10:30	Total Dissolved Solids, Total Suspended Solids
17070348-004	SO071317-02	Liquid	7/13/2017 10:30	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
17070348-005	L071317-01	Liquid	7/13/2017 11:00	Total Dissolved Solids, Total Suspended Solids
17070348-006	L071317-02	Liquid	7/13/2017 11:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





Order ID: 17070348 Date: 7/21/2017 Page 2 of 16

Exide Technologies Billy King

# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD07 17070 7/13/2	<b>1317-01</b> 0348-001 2017						
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry						a balan da di si		<u>_</u>
Total Dissolved Solids	20.0	25	102	0 mg/L	07/19/17 16:45	SM-2540-C	W.S.	
Total Suspended Solids	1.0	5	1.	4 mg/L	07/18/17 16:15	SM-2540-D	K.E.L.	J-5





Order ID: 17070348 Date: 7/21/2017 Page 3 of 16

Exide Technologies Billy King

# **Analytical Report**

Customer Sample ID: Oxidor Sample ID:	FD071	<b>317-02</b> 348-002			Matrix: L	iauid		
Sample Received:	7/13/2	017		Sam	ple Collected: 7	/13/2017 0	9:00	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 07/14/17 at	09:00							
Arsenic	0.003	0.005	0.006	mg/L	07/14/17 16:00	200.8	G.B.	
Barium	0.003	0.005	0.081	mg/L	07/14/17 16:00	200.8	G.B.	
Cadmium	0.0005	0.001	0.0015	mg/L	07/14/17 16:00	200.8	G.B.	
Chromium	0.003	0.005	0.011	mg/L	07/14/17 16:00	200.8	G.B.	
Copper	0.0025	0.005	0.0103	mg/L	07/14/17 16:00	200.8	G.B.	
Iron	0.25	0.5	0.33	mg/L	07/14/17 16:00	200.8	G.B.	J-5
Lead	0.003	0.005	0.024	mg/L	07/14/17 16:00	200.8	G.B.	
Manganese	0.001	0.002	0.003	mg/L	07/14/17 16:00	200.8	G.B.	
Nickel	0.003	0.005	0.003	mg/L	07/14/17 16:00	200.8	G.B.	J-5
Selenium	0.0025	0.005	0.0099	mg/L	07/14/17 16:00	200.8	G.B.	
Silver	0.001	0.001	0.001	mg/L	07/14/17 16:00	200.8	G.B.	
Zinc	0.003	0.005	0.026	mg/L	07/14/17 16:00	200.8	G.B.	
Digested by method 245.1 on 07/17/17 at	09:00							
Mercury	0.0001	0.0002	ND	mg/L	07/17/17 14:17	245.1	G.B.	





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Exide Technologies Billy King

# Sample Cross Reference

#### Project Name: Raw Grab Samples Quarterly

Customer ID:	tomer ID: Lab ID: Test		Method	QCBatchID:		
FD071317-01	17070348-001	Total Dissolved Solids	SM-2540-C	TDS07523_L		
		Total Suspended Solids	SM-2540-D	TSS11834_L		
FD071317-02	17070348-002	Mercury	245.1	MERC 08738 L		
		Arsenic	200.8	META 01469 L		
		Selenium	200.8	META 01469 L		
		Silver	200.8	META 01469 L		
		Zinc	200.8	META 01469 L		
		Manganese	200.8	META 01469 L		
		Lead	200.8	META 01469 L		
		Iron	200.8	META 01469 L		
		Соррег	200.8	META 01469 L		
		Chromium	200.8	META 01469 L		
		Nickel	200.8	META_01469_L		
		Barium	200.8	META 01469 L		
the course of the second s		Cadmium	200.8	META 01469 L		
SO071317-01	17070348-003	Total Dissolved Solids	SM-2540-C	TDS 07523 1		
		Total Suspended Solids	SM-2540-D	TSS 11934 L		
SO071317-02	17070348-004	Mercury	245.1	MERC 08738		
		Copper	200.8	META 01869 I		
		Silver	200.8	META 01869 I		
		Selenium	200.8	META 01869 I		
		Nickel	200.8	META 01869 L		
		Manganese	200.8	META 01869 I		
		Iron	200.8	META 01869 1		
		Chromium	200.8	META 01869 I		
		Zinc	200.8	META 01869		
		Cadmium	200.8	META 01869 L		
		Barium	200.8	META 01869 I		
		Arsenic	200.8	META 01869 I		
		Lead	200.8	META 01869 I		
_071317-01	17070348-005	Total Dissolved Solids	SM-2540-C	TDS 07523 I		
		Total Suspended Solids	SM-2540-D	TSS 11934 I		
L071317-02	17070348-006	Mercury	245.1	MEBC 00128 1		
		Lead	200.8	META 01960 L		
		Arsenic	200.8	META 01960 L		
		Barium	200.8	META 01860		
		Cadmium	200.8	META_01869_L		
		Chromium	200.0	META 01860 L		
		Iron	200.8	META 01869_L		
		Manganese	200.8	META 01009_L		
		Nickel	200.0	META 01960 L		
		Selenium	200.0	META 04000 L		
		Silver	200.8	META 01869_L		
		Zinc	200.8	META 01960 L		
		Copper	200.8	META 01869_L		

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Exide Technologies Billy King

# **QC Summary**

			Rec RPD			RPD			
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID TDS_07523_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	955 mg/L		1000 mg/L	96%	90-110%			
LCSD	Total Dissolved Solids	975 mg/L		1000 mg/L	98%	90-110%	2.1%	0-5%	
Replicate	Total Dissolved Solids	62800 mg/L	63600 mg/L				1.3%	0-5%	
QCBatch	1D TSS11834_L								
Blank	Total Suspended Solids	ND mg/L							ter get for an and a second
LCS	Total Suspended Solids	477 mg/L		500 mg/L	95%	85-115%			
LCSD	Total Suspended Solids	484 mg/L		500 mg/L	97%	85-115%	1.5%	0-15%	
Replicate	Total Suspended Solids	26.0 mg/L	23.0 mg/L				12.2%	0-15%	
QCBatch	ID TSS11934_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	497 mg/L		500 mg/L	99%	85-115%			
LCSD	Total Suspended Solids	480 mg/L		500 mg/L	96%	85-115%	3.5%	0-15%	
Replicate	Total Suspended Solids	86.0 mg/L	106 mg/L				20.8%	0-15%	Q-7
QCBatch	ID MERC_08738_L								
Blank	Mercury	ND mg/L		11-14-14-14-14-1-1-1-1-1-1-1-1-1-1-1-1-					
LCS	Mercury	0.0052 mg/L		0.005 mg/L	104%	85-115%			
LCSD	Mercury	0.0052 mg/L		0.005 mg/L	104%	85-115%	0.0%	0-25%	
MS	Mercury	0.0053 mg/L	ND	0.005 mg/L	106%	80-120%			
MSD	Mercury	0.0053 mg/L	ND	0.005 mg/L	106%	80-120%	0.4%	0-25%	
QCBatch	ID MERC_09138_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0053 mg/L		0.005 mg/L	106%	85-115%			
LCSD	Mercury	0.0053 mg/L		0.005 mg/L	106%	85-115%	0.4%	0-25%	
MS	Mercury	0.0054 mg/L	ND	0.005 mg/L	108%	80-120%		0 20 /0	
MSD	Mercury	0.0054 mg/L	ND	0.005 mg/L	108%	80-120%	0.0%	0-25%	
QCBatch	ID META_01469_L								
Blank	Arsenic	ND mg/L	and the second						
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.495 mg/L		0.5 mg/L	99%	85-115%			




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Exide Technologies Billy King

#### **QC Summary**

#### Project Name: Raw Grab Samples Quarterly

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID META_01469_L							are a constantion of the state	
	Barium	0.499 mg/L		0.5 mg/L	100%	85-115%			
	Cadmium	0.5043 mg/L		0.5 mg/L	101%	85-115%			
	Chromium	0.490 mg/L		0.5 mg/L	98%	85-115%			
	Copper	0.4825 mg/L		0.5 mg/L	97%	85-115%			
	Iron	50.0 mg/L		50.5 mg/L	99%	85-115%			
	Lead	0.493 mg/L		0.5 mg/L	99%	85-115%			
	Manganese	0.482 mg/L		0.5 mg/L	96%	85-115%			
	Nickel	0.483 mg/L		0.5 mg/L	97%	85-115%			
	Selenium	0.4782 mg/L		0.5 mg/L	96%	85-115%			
	Silver	0.516 mg/L		0.5 mg/L	103%	85-115%			
	Zinc	0.500 mg/L		0.5 mg/L	100%	85-115%			
LCSD	Arsenic	0.500 mg/L		0.5 mg/L	100%	85-115%	1.0%	0-20%	
	Barium	0.504 mg/L		0.5 mg/L	101%	85-115%	1.0%	0-20%	
	Cadmium	0.5101 mg/L		0.5 mg/L	102%	85-115%	1 1%	0-20%	
	Chromium	0.492 mg/L		0.5 ma/L	98%	85-115%	0.4%	0-20%	
	Copper	0.4919 mg/L		0.5 mg/L	98%	85-115%	1.9%	0-20%	
	Iron	51.1 mg/L		50.5 mg/L	101%	85-115%	2.2%	0-20%	
	Lead	0.500 mg/L		0.5 mg/L	100%	85-115%	1.4%	0-20%	
	Manganese	0.489 mg/L		0.5 mg/L	98%	85-115%	1.4%	0-20%	
	Nickel	0.486 mg/L		0.5 mg/L	97%	85-115%	0.6%	0-20%	
	Selenium	0.4980 mg/L		0.5 mg/l	100%	85-115%	1 1%	0-20%	
	Silver	0.514 mg/L		0.5 mg/l	103%	85-115%	0.4%	0.20%	
	Zinc	0.511 mg/L		0.5 mg/l	102%	85-115%	2.2%	0-20%	
MS	Arsenic	0.504 mg/L	0.006 ma/L	0.5 mg/L	100%	80-120%	2.2 10	0-20 %	
	Barium	0.581 mg/L	0.081 mg/l	0.5 mg/L	100%	80-120%			
	Cadmium	0.4944 mg/L	0.0015 mg/l	0.5 mg/L	99%	80.120%			
	Chromium	0.500 mg/L	0.011 mg/l	0.5 mg/L	98%	80.120%			
	Copper	0.4872 mg/l	0.0103 mg/l	0.5 mg/L	05%	90 120%			
	Iron	50.3 mg/L	0.33 ma/l	50.5 mg/l	90%	80.120%			
	Lead	0.517 mg/l	0.024 mg/l	0.5 mg/l	00%	90 120 /0			
	Manganese	0.487 mg/l	0.003 mg/l	0.5 mg/L	97%	80 120%			
	Nickel	0.484 ma/L	0.003 mg/l	0.5 mg/L	96%	80.120%			
	Selenium	0.5025 mg/L	0.0099 mg/l	0.5 mg/L	00%	80 120%			
	Silver	0.499 mg/l	0 001 mg/l	0.5 mg/L	100%	80 120%			
	Zinc	0.514 mg/l	0.026 mg/l	0.5 mg/L	0.8%	80 120%			
MSD	Arsenic	0.497 mg/l	0.006 mg/L	0.5 mg/L	0.8%	80 120%	4 40/	0.00%	
	Barium	0.589 mg/l	0.081 mg/L	0.5 mg/L	1020/	00-120%	1.4%	0-20%	
	Cadmium	0.4934 mg/L	0.0015 mg/L	0.5 mg/L	02%	00-120%	1.4%	0-20%	
	Chromium	0.500 mg/l	0.011 mg/l	0.5 mg/L	0.80%	80 120%	0.2%	0-20%	
	Copper	0.4852 mg/L	0.0103 ma/l	0.5 mg/L	90%	80-120%	0.0%	0-20%	
	Iron	50.0 mg/L	0.33 mg/l	50.5 mg/L	0.00	00-120%	0.4%	0-20%	
	Lead	0.516 mg/L	0.024 mg/L	0.5 mg/L	08%	80 120%	0.0%	0-20%	
	Manganese	0.487 mg/l	0.003 mg/l	0.5 mg/L	070/	00-120%	0.2%	0-20%	
		0.407 mg/L	0.000 mg/L	0.5 mg/L	91%	80-120%	0.0%	0-20%	

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### **QC** Summary

#### Project Name: Raw Grab Samples Quarterly

and the second second second			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID META_01469_L								
	Nickel	0.484 mg/L	0.003 mg/L	0.5 mg/L	96%	80-120%	0.0%	0-20%	
	Selenium	0.4998 mg/L	0.0099 mg/L	0.5 mg/L	98%	80-120%	0.5%	0-20%	
	Silver	0.491 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%	1.6%	0-20%	
	Zinc	0.515 mg/L	0.026 mg/L	0.5 mg/L	98%	80-120%	0.2%	0-20%	
QCBatch	DID META_01869_L								
Blank	Arsenic	ND mg/L	- <u> </u>			and the second secon			and a second a second
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND ma/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.504 mg/L		0.5 ma/l	101%	85-115%			
200	Barium	0.517 mg/L		0.5 mg/L	107%	95 115%			
	Cadmium	0.4996 mg/l		0.5 mg/L	100%	95 115%			
	Chromium	0.480 mg/l		0.5 mg/L	06%	95 115%			
	Conner	0.4820 mg/L		0.5 mg/L	90 %	95 115 /			
	Iron	51.6 mg/L		50.5 mg/l	4000/	00-110%			
	Lead	0.496 mg/L		0.5 mg/L	102%	85-115%			
	Мардаресо	0.490 mg/L		0.5 mg/L	99%	00-110%			
	Nickel	0.471 mg/L		0.5 mg/L	90%	05-115%			
	Solonium	0.471 mg/L		0.5 mg/L	94%	85-115%			
	Silver	0.5347 mg/L		0.5 mg/L	107%	85-115%			
	Zine	0.507 mg/L		0.5 mg/L	101%	85-115%			
1.000		0.513 mg/L		0.5 mg/L	103%	85-115%			
LUSD	Arsenic	0.514 mg/L		0.5 mg/L	103%	85-115%	2.0%	0-20%	
	Barium	0.528 mg/L		0.5 mg/L	106%	85-115%	2.1%	0-20%	
	Cadmium	0.5055 mg/L		0.5 mg/L	101%	85-115%	1.2%	0-20%	
	Chromium	0.484 mg/L		0.5 mg/L	97%	85-115%	0.8%	0-20%	
	Copper	0.5028 mg/L		0.5 mg/L	101%	85-115%	4.2%	0-20%	
	Iron	53.0 mg/L		50.5 mg/L	105%	85-115%	2.7%	0-20%	
	Lead	0.486 mg/L		0.5 mg/L	97%	85-115%	2.0%	0-20%	
	Manganese	0.488 mg/L		0.5 mg/L	98%	85-115%	1.7%	0-20%	
	Nickel	0.475 mg/L		0.5 mg/L	95%	85-115%	0.8%	0-20%	
	Selenium	0.5366 mg/L		0.5 mg/L	107%	85-115%	0.4%	0-20%	
	Silver	0.524 mg/L		0.5 mg/L	105%	85-115%	3.3%	0-20%	
	Zinc	0.526 mg/L		0.5 mg/L	105%	85-115%	2.5%	0-20%	
MS	Arsenic	0.509 mg/L	0.002 mg/L	0.5 mg/L	101%	80-120%			
	Barium	0.599 mg/L	0.076 mg/L	0.5 mg/L	105%	80-120%			





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### **QC Summary**

#### Project Name: Raw Grab Samples Quarterly

		1900-1911 - 1921 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1	Reference			Rec		RPD	_
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_01869_L								
	Cadmium	0.5012 mg/L	ND	0.5 mg/L	100%	80-120%			
	Chromium	0.486 mg/L	0.002 mg/L	0.5 mg/L	97%	80-120%			
	Copper	0.5976 mg/L	0.0998 mg/L	0.5 mg/L	100%	80-120%			
	Iron	52.9 mg/L	0.441 mg/L	50.5 mg/L	104%	80-120%			
	Lead	0.459 mg/L	0.001 mg/L	0.5 mg/L	92%	80-120%			
	Manganese	0.537 mg/L	0.056 mg/L	0.5 mg/L	96%	80-120%			
	Nickel	0.474 mg/L	0.004 mg/L	0.5 mg/L	94%	80-120%			
	Selenium	0.5282 mg/L	0.001 mg/L	0.5 mg/L	105%	80-120%			
	Silver	0.511 mg/L	ND	0.5 mg/L	102%	80-120%			
	Zinc	0.729 mg/L	0.229 mg/L	0.5 mg/L	100%	80-120%			
MSD	Arsenic	0.518 mg/L	0.002 mg/L	0.5 mg/L	103%	80-120%	1.8%	0-20%	
	Barium	0.582 mg/L	0.076 mg/L	0.5 mg/L	101%	80-120%	2.9%	0-20%	
	Cadmium	0.4974 mg/L	ND	0.5 mg/L	100%	80-120%	0.8%	0-20%	
	Chromium	0.491 mg/L	0.002 mg/L	0.5 mg/L	98%	80-120%	1.0%	0-20%	
	Copper	0.6259 mg/L	0.0998 mg/L	0.5 mg/L	105%	80-120%	4.6%	0-20%	
	Iron	52.5 mg/L	0.441 mg/L	50.5 mg/L	103%	80-120%	0.8%	0-20%	
	Lead	0.471 mg/L	0.001 mg/L	0.5 mg/L	94%	80-120%	2.6%	0-20%	
	Manganese	0.547 mg/L	0.056 mg/L	0.5 mg/L	98%	80-120%	1.8%	0-20%	
	Nickel	0.482 mg/L	0.004 mg/L	0.5 mg/L	96%	80-120%	1.7%	0-20%	
	Selenium	0.5341 mg/L	0.001 mg/L	0.5 mg/L	107%	80-120%	1.1%	0-20%	
	Silver	0.506 mg/L	ND	0.5 mg/L	101%	80-120%	1.0%	0-20%	
	Zinc	0.732 mg/L	0.229 mg/L	0.5 mg/L	101%	80-120%	0.4%	0-20%	





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Exide Technologies Billy King

#### **Case Narrative**

#### Project Name: Raw Grab Samples Quarterly

Construction of the second	
J-27	Refer to narrative.
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Q-7	Recovery and/or RPD outside desirable limits.
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

Samples 17070348-003 and -005 had on filter recovery weights of >200 mg. These samples could not be re-analyzed for lower on filter recovery weights.

This report is intended only for the use of Exide Technologies and may contain information that is privileged and confidential. It may not be reproduced in full (or in part) without the expressed written permission of Exide Technologies and Oxidor Laboratories, LLC.

Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





Order ID: 17070348 Date: 7/21/2017 Page 14 of 16

Exide Technologies Billy King

# **Sample Preservation Verification**

Project Name: Raw Grab S	Samples Quarterly
--------------------------	-------------------

Receipt temp: 4.0 °C on Ice		
Receipt method: Customer Courie	er	
Custody seal intact: Yes		All samples / labels received intact: Yes
Customer Sample ID: FD071317-01		Collected By: Jose Acevedo
Oxidor Sample ID: 17070348-001		Collector Affiliation: Exide Technologies
Collected: 07/13/17 09:00		Matrix: Liquid
		Indicated
Bottle Type Cour	t <u>Collection Method</u>	Parts / Interval Preservation pH
1000 mL Plastic 1	Grab	Temp -
Customer Sample ID: FD071317-02		Collected By: Jose Acevedo
Oxidor Sample ID: 17070348-002		Collector Affiliation: Exide Technologies
Collected: 07/13/17 09:00		Matrix: Liquid
		Indicated
Bottle Type Coun	t <u>Collection Method</u>	Parts / Interval Preservation pH
250 mL Plastic 1	Grab	HNO3 <2
Customer Sample ID: SO071317-01		Collected By: Jose Acevedo
Oxidor Sample ID: 17070348-003		Collector Affiliation: Exide Technologies
Collected: 07/13/17 10:30		Matrix: Liquid
		Indicated
Bottle Type Coun	t <u>Collection Method</u>	Parts / Interval Preservation pH
1000 mL Plastic 1	Grab	Temp -
Customer Sample ID: SO071317-02		Collected By: Jose Acevedo
Oxidor Sample ID: 17070348-004		Collector Affiliation: Exide Technologies
Collected: 07/13/17 10:30		Matrix: Liquid
Battle Tune		Indicated
250 ml Dipatia	<u>Collection Method</u>	Parts / Interval Preservation pH
250 ML Flastic	Grab	HNO3 <2
Customer Sample ID: L071317-01		Collected By: Jose Acevedo
Oxidor Sample ID: 17070348-005		Collector Affiliation: Exide Technologies
Collected: 07/13/17 11:00		Matrix: Liquid
Dettle Turne		Indicated
1000 mL Diantia	Collection Method	Parts / Interval Preservation pH
1000 mL Plastic 1	Grab	Temp -





Order ID: 17070348 Date: 7/21/2017 Page 15 of 16

Exide Technologies Billy King

# **Sample Preservation Verification**

Project Name: Raw Grab Samples Quarterly

Customer Sample ID: L071317-02			Collected By: Jose Acevedo				
Oxidor Sample ID: 17070348-006			Collector Affiliation: Exide Technologies				
Collected: 07/13/17 11:00			Matrix:	Liquid			
Bottle Type	Bottle Type Count		Parts / Interval	Indicated Preservation	<u>pH</u>		
250 mL Plastic	1	Grab		HNO3	<2		

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





Order ID: 17070348 Date: 7/21/2017 Page 16 of 16

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4.0°C

G = GRAB WS - WATER SAMPLES

FC = FLOW WEIGHTED COMPOSITE (96 PARTS)

\*\* TC = TIML COMPOSITE (96PARTS)

#### Documentation

# PROJECT DESCRIPTION: Raw Grab Samples Quarterly

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Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227



February 19, 2018

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

#### RE: 2017 FOURTH QUARTER FRENCH DRAIN OPERATIONAL REPORT

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the fourth quarter of 2017. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

#### 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the fourth quarter of 2017 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.



1302086

- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the fourth quarter 2017 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the fourth quarter of 2017.

A more detailed description of the results of data collection activities and inspections is included in section 3 below.

#### 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#history/s20160331/e20170401/myear). At the time of the Site inspection, the flow meter was not recording properly. Exide was notified of the equipment malfunction at the time of the inspection and maintenance was performed as needed.

#### 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the fourth quarter of 2017. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in third quarter 2017 with some wells having a slight decrease in water level while others had a slight increase.

#### 3.3 Floodwall Seepage

At the time of the wall inspection on November 28, 2017 sealant previously used to fill cracks appeared to be in deteriorating condition. Exide was notified and repairs were made as needed. No seepage from the floodwall was observed. The floodwall waterstops and joint fillers were generally in good condition and no major cracks were observed with the exception as noted above.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on November 28, 2017. As such, no samples of white crystalline material were collected or analyzed.

#### 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the fourth quarter of 2017. Due to abnormal results from the quarterly sampling on October 4, 2017, resampling of the French Drain was



Mr. Brad Weaver	February 19, 2018
Exide Technologies 3	1302086

conducted on October 23, 2017 and on October 27, 2017. All analytical results from these samples are included in Table 3 and Attachment A.

#### 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the fourth quarter of 2017 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

#### 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

#### **GOLDER ASSOCIATES INC.**

Emily White

Emily White Staff Geological Engineer

Anne Faith - Bord

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer

: L Boot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

EPW/AMF/FMB



#### Table 1 French Drain Daily Flow Volumes

Oct-17			Nov-17			Dec-17			
Total Flow (gal)			Total Flow (gal) P			Total Flow (gal)			
10,490		1.90	3,892		0.80	15,810	15,810		
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	
Sunday, October 01, 2017	NR	0.00	Wednesday, November 1, 2017	130	0.00	Friday, December 1, 2017	30	0.00	
Monday, October 02, 2017	NR <sup>1</sup>	0.00	Thursday, November 2, 2017	50	0.00	Saturday, December 2, 2017	NR	0.00	
Tuesday, October 03, 2017	950	0.43	Friday, November 3, 2017	50	0.00	Sunday, December 3, 2017	NR	0.00	
Wednesday, October 04, 2017	3,430	0.12	Saturday, November 4, 2017	NR	0.00	Monday, December 4, 2017	40	0.57	
Thursday, October 05, 2017	640	0.00	Sunday, November 5, 2017	NR	0.00	Tuesday, December 5, 2017	660	0.00	
Friday, October 06, 2017	120	0.00	Monday, November 6, 2017	140	0.00	Wednesday, December 6, 2017	370	0.00	
Saturday, October 07, 2017	NR	0.00	Tuesday, November 7, 2017	40	0.00	Thursday, December 7, 2017	NR <sup>1</sup>	0.00	
Sunday, October 08, 2017	NR	0.00	Wednesday, November 8, 2017	790	0.79	Friday, December 8, 2017	NR <sup>1</sup>	0.00	
Monday, October 09, 2017	410	0.00	Thursday, November 9, 2017	1,560	0.00	Saturday, December 9, 2017	NR	0.00	
Tuesday, October 10, 2017	240	0.09	Friday, November 10, 2017	340	0.01	Sunday, December 10, 2017	NR	0.00	
Wednesday, October 11, 2017	250	0.00	Saturday, November 11, 2017	NR	0.00	Monday, December 11, 2017	390	0.00	
Thursday, October 12, 2017	200	0.00	Sunday, November 12, 2017	NR	0.00	Tuesday, December 12, 2017	50	0.00	
Friday, October 13, 2017	90	0.00	Monday, November 13, 2017	310	0.00	Wednesday, December 13, 2017	40	0.00	
Saturday, October 14, 2017	NR	0.00	Tuesday, November 14, 2017	40	0.00	Thursday, December 14, 2017	40	0.00	
Sunday, October 15, 2017	NR	0.11	Wednesday, November 15, 2017	60	0.00	Friday, December 15, 2017	NR	0.00	
Monday, October 16, 2017	420	0.00	Thursday, November 16, 2017	50	0.00	Saturday, December 16, 2017	NR	0.65	
Tuesday, October 17, 2017	100	0.00	Friday, November 17, 2017	50	0.00	Sunday, December 17, 2017	NR	0.00	
Wednesday, October 18, 2017	110	0.00	Saturday, November 18, 2017	NR	0.00	Monday, December 18, 2017	NR	0.00	
Thursday, October 19, 2017	90	0.00	Sunday, November 19, 2017	NR	0.00	Tuesday, December 19, 2017	NR	1.75	
Friday, October 20, 2017	100	0.00	Monday, November 20, 2017	160	0.00	Wednesday, December 20, 2017	6,130	0.02	
Saturday, October 21, 2017	NR	0.00	Tuesday, November 21, 2017	40	0.00	Thursday, December 21, 2017	930	0.00	
Sunday, October 22, 2017	NR	1.12	Wednesday, November 22, 2017	40	0.00	Friday, December 22, 2017	NR	1.03	
Monday, October 23, 2017	1,160	0.00	Thursday, November 23, 2017	NR	0.00	Saturday, December 23, 2017	NR	0.00	
Tuesday, October 24, 2017	190	0.00	Friday, November 24, 2017	NR	0.00	Sunday, December 24, 2017	NR	0.00	
Wednesday, October 25, 2017	210	0.00	Saturday, November 25, 2017	NR	0.00	Monday, December 25, 2017	NR	0.00	
Thursday, October 26, 2017	210	0.00	Sunday, November 26, 2017	NR	0.00	Tuesday, December 26, 2017	4,980	0.01	
Friday, October 27, 2017	180	0.00	Monday, November 27, 2017	48 <sup>2</sup>	0.00	Wednesday, December 27, 2017	1,640	0.00	
Saturday, October 28, 2017	NR	0.00	Tuesday, November 28, 2017	2	0.00	Thursday, December 28, 2017	140	0.00	
Sunday, October 29, 2017	NR	0.00	Wednesday, November 29, 2017	40	0.00	Friday, December 29, 2017	370	0.00	
Monday, October 30, 2017	1,240	0.00	Thursday, November 30, 2017	0	0.00	Saturday, December 30, 2017	NR	0.00	
Tuesday October 31 2017	150	0.03				Sunday, December 31, 2017	NR	0.00	

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear Daily flow volumes provided by Exide. NR - Not Recorded

<sup>1</sup> Meter not working properly.

<sup>2</sup> Flow meter not working properly, gallons are estimated; maintenance performed.

Prepared by: EPW 01/04/2018 Checked by: TJG 01/05/2018 Reviewed by: AMF 02/05/2018

		Stev	wart Creek Elevat	ions	
Surv	vev Point		Measurement	El	evation
Tuessee at 4			Date	(	ft msl)
Top of North Bank			2/7/2016		578 74
Toe of North Bank			3/7/2016		624.79
Creek Centerline			3/7/2016		622.79
Toe of South Bank			3/7/2016	(	624.27
Top of South Bank			3/7/2016		634.09
Transect 2			2/7/2016		C 2 7 7 7
Top of North Bank			3/7/2016		027.97 623 57
Toe of South Bank			3/7/2016		624.04
Top of South Bank			3/7/2016		630.52
Transect 3					
Top of North Bank			3/7/2016		628.20
Toe of North Bank			3/7/2016		622.70
Top of South Bank			3/7/2016		022.00 678.18
	TOC	Caroon	5/7/2010	Donth to	Groundwater
	Flevation	Interval	Measurement	Groundwater	Flevation
Wein 1D	(ft mcl)	(ft has)	Data	(ft htoc)	(ft mel)
MW-26	631.93	(it bgs) 5-15	3/11/2013	9.98	621.95
(Groundwater)	051.55	5 15	4/5/2013	9.52	622.41
(,			4/29/2013	9.21	622.72
			1/21/2014	5.80	626.13
			7/29/2014	5.79	626.14
			9/23/2014	8.9	623.03
			0/12/2015 0/8/2015	5.32	626.01
			12/17/2015	5.32	626.61
			2/29/2016	5.41	626.52
			6/1/2016	5.47	626.46
			9/8/2016	5.51	626.42
			12/2/2016	5.65	626.28
			5/2/2017	6.21	625.72
			8/28/2017	5.56	626.37
			11/27/2018	5.71	626.22
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43
(Groundwater)			4/5/2013	6.96	626.55
			4/29/2013	6.50	626.95
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
			9/8/2015	6.35	627.16
			12/17/2015	5.67	627.84
			6/1/2016	5.79	627.72
			9/8/2016	5.67	627.84
			12/2/2016	6.25	627.26
			3/2/2017	6.51	627.00
			5/4/2017	5.80	627.71
			8/28/2017	5.90	627.61
MW-31	636.71	8-23	5/13/2013	10.58	626.13
(Groundwater)	000071	0 20	1/21/2014	10.87	625.84
			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
			9/8/2015	10.53	620.18
			2/29/2016	9.78	626.93
			6/1/2016	9.82	626.89
			9/8/2016	9.90	626.81
			12/2/2016	10.21	626.50
			3/2/2017	12.23	624.48 626.12
			5/4/2017 8/28/2017	0 QQ	626.13
			11/27/2019	10.82	625.89

Weil ID         Flevation         Interval (ft bag)         Flevation (ft bag)         Flevation (ft bag)         Flevation (ft bag)         Elevation (ft bag)           MW-32 (Perched)         630.96         2.5-5         1/21/2014 (ft bag)         4.16 (ft bag)         626.57 (ft bag)           MW-32 (Perched)         630.96         2.5-5         1/21/2016 (ft bag)         3.77 (ft bag)         7.77 (ft bag)           MW-33 (Perched)         632.59         2.5-5         1/21/2016 (ft bag)         3.62 (ft bag)         627.70 (ft bag)           MW-33 (Perched)         632.59         2.5-5         1/21/2014 (ft bag)         1.09 (ft bag)         631.50 (ft bag)           MW-33 (Perched)         632.59         2.5-5         1/21/2014 (ft bag)         1.09 (ft bag)         631.50 (ft bag)           MW-34 (Perched)         632.59         2.5-5         1/21/2014 (ft bag)         1.09 (ft bag)         631.51 (ft bag)           MW-34 (Perched)         632.83         2.5-5         1/21/2014 (ft bag)         1.09 (ft bag)         631.52 (ft bag)           MW-34 (Perched)         632.83         2.5-5         1/21/2014 (ft bag)         1.09 (ft bbag)         631.52 (ft bbag)           MW-34 (Perched)         632.83         2.5-5         1/21/2014 (ft bbag)         1.05 (ft bbag)         632.83 (ft bbag)		тос	Screen	Measurement	Depth to	Groundwater
MW-32 (Perched)         G30.96         2.5-5         J21/2014 J2/2014         4.59         G26.37           (Perched)         630.96         2.5-5         J21/2014         4.59         G26.37           (Perched)         9/23/2014         4.59         G26.37         G27.17           (Perched)         9/8/2015         R         R         R           12/2/2016         3.57         G27.34         G27.34           9/8/2016         3.60         G27.34         G27.47           9/8/2017         3.49         G27.47         G27.47           8/28/2017         3.54         G27.47         G27.42           MW-33         G32.59         2.5-5         1/21/2014         1.09         G31.50           9/8/2017         0.81         G31.50         G31.50         G31.50           9/8/2016         1.07         G31.52         G31.50         G31.50           9/8/2016         1.07         G31.52         G31.51         G31.54           12/2/2016         0.85         G31.74         G22.42           MW-34         G32.83         2.5-5         1/21/2014         4.45         G28.38           12/2/2016         0.85         G31.74         G22.42	Well ID	Elevation	Interval	ricusurcincin	Groundwater	Elevation
MW-32 (Perched)         630.96         2.5-5         1/21/2014         4.16         626.37           (Perched)         9/3/2014         4.59         662.37           9/23/2014         4.59         662.37           9/23/2015         R         R           9/23/2016         3.57         627.39           61/2015         R.7         R           9/8/2016         3.62         627.41           9/8/2016         3.83         627.43           9/8/2016         3.83         627.41           12/2/2016         3.40         627.41           12/2/2014         1.09         631.50           7/29/2014         2.14         630.45           9/23/2014         1.55         631.04           12/1/2015         1.21         631.50           9/23/2014         1.55         631.04           12/1/2015         1.07         631.52           3/2/017         0.86         631.71           5/4/2017         0.86         631.73           3/2/2017         0.86         631.73           11/21/2018         3.42         628.38           6/1/2015         3.03         629.80           2/29/201		(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
(Perched)         7/29/2014         4.59         626.37           9/23/2014         4.59         626.37           6/12/2015         3.79         627.17           9/8/2015         R         R           2/29/2016         3.57         627.37           9/8/2015         R         R           2/29/2016         3.57         627.34           9/8/2015         3.54         627.47           9/8/2017         3.26         627.47           8/28/2017         3.55         627.41           8/28/2017         3.54         627.42           MW-33         632.59         2.5-5         1/21/2014         1.09         631.50           9/8/2016         1.07         631.50         9/23/2014         2.14         630.45           9/23/2014         1.55         631.14         31/2         12/2/2016         0.95         631.64           3/2/2017         0.81         631.51         9/8/2017         0.81         631.51           9/8/2017         0.85         631.74         11/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2014         4.31         628.38           6	MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
MW-34         632.85         2.5-5         1/21/2014         4.59         626.37           MW-35         632.85         2.5-5         1/21/2016         3.62         627.13           MW-36         632.59         2.5-5         1/21/2016         3.61         627.70           MW-33         632.59         2.5-5         1/21/2018         3.54         627.41           MW-33         632.59         2.5-5         1/21/2018         3.54         627.41           MW-33         632.59         2.5-5         1/21/2018         1.09         631.50           P(Perched)         7/29/2014         1.15         631.04         12/1/2015         1.21         631.35           9/23/2014         1.55         631.04         12/1/2015         1.21         631.52         12/2/2016         1.07         631.52           9/2/2016         1.07         631.52         12/2/2016         1.07         631.52         12/2/2016         631.52         12/2/2016         631.52         12/2/2016         631.53         12/2/2016         631.52         12/2/2016         631.53         631.71         5/4/2017         0.86         631.71           9/8/2016         1.07         0.31.52         12/2/2016         632.8	(Perched)			7/29/2014	4.59	626.37
MW-33         632.59         2.5-5         1/2/2/015         3.79         627.17           MW-34         632.59         2.5-5         1/2/2/016         3.57         627.39           Perched)         632.59         2.5-5         1/2/2/017         3.40         627.47           MW-33         632.59         2.5-5         1/2/2/018         3.54         627.42           MW-34         632.59         2.5-5         1/2/2/018         3.54         627.42           MW-34         632.59         2.5-5         1/2/2/016         1.09         631.50           Perched)         7/29/2014         2.14         630.45         637.29           MW-34         632.59         2.5-5         1/2/1/2015         1.21         631.50           9/8/2016         1.07         631.50         9/8/2016         1.07         631.52           1/2/2/2016         0.95         631.74         1/2/2/2016         0.85         631.74           MW-34         632.83         2.5-5         1/2/2/2016         1.36         632.83         2.5-5         1/2/2/2015         3.4         628.85           1/2/2/2016         1.95         630.88         631.74         628.28         628.28         628.28 </td <td></td> <td></td> <td></td> <td>9/23/2014</td> <td>4.59</td> <td>626.37</td>				9/23/2014	4.59	626.37
MW-33         632.59         2.5-5         1/21/2016         3.57         67.7.39           MW-33         632.59         2.5-5         1/21/2016         3.40         627.24           MW-33         632.59         2.5-5         1/21/2014         1.09         631.50           (Perched)         632.59         2.5-5         1/21/2014         1.09         631.52           (Perched)         632.59         2.5-5         1/21/2014         1.09         631.52           6/1/2016         1.07         631.52         6/1/2016         1.07         631.52           6/1/2016         1.09         631.52         6/1/2016         1.07         631.52           7/29/2014         2.15         1.21         633.68         631.73           11/27/2015         1.21         633.68         631.73           11/27/2016         0.95         631.68         631.73           11/27/2018         0.85         631.73         632.83           2.5-5         1/21/2014         4.45         628.38           6/1/2016         2.99         630.24         2/29/2014           2/29/2015         1.95         630.24         2/29/2015           2/29/2016         1.95				6/12/2015	3.79	627.17
MW-33         632.59         2.5-5         1/2/12/016         3.62         627.34           MW-33         632.59         2.5-5         3/2/2017         3.49         622.47           (Perched)         632.59         2.5-5         1/2/2/2018         3.54         627.41           11/27/2018         3.54         627.41         630.45         632.59         1/2/2/2014         2.14         630.45           9/8/2016         1.09         631.50         67/2/2014         2.14         630.45         632.59         1/2/1/2014         1.09         631.50           (Perched)         632.59         2.5-5         1/2/1/2014         1.09         631.50         631.52           12/12/2016         1.07         631.52         631.64         3/2/2017         0.86         631.73           12/2/2016         0.95         631.64         3/2/2017         0.86         631.73           12/2/2016         1.07         631.52         632.83         2.5-5         1/2/1/2014         4.31         628.23           (Perched)         632.83         2.5-5         1/2/1/2014         0.85         631.73           12/2/2016         2.50         630.33         3/2/2017         2.50         630.33 <td></td> <td></td> <td></td> <td>9/8/2015</td> <td>K 357</td> <td>K 677.30</td>				9/8/2015	K 357	K 677.30
MW-34         632.83         2.5-5         1/2/2/2016         3.83         627.13           MW-33         632.59         2.5-5         1/2/2/2017         3.26         627.70           S/4/2017         3.55         627.41         627.42         627.42           MW-33         632.59         2.5-5         1/21/2014         1.09         631.50           (Perched)         7/29/2014         1.55         631.04         627.42           9/23/2016         1.07         631.50         61/2016         1.07           9/23/2016         1.07         631.50         61/2016         1.07           9/23/2016         1.07         631.50         61/2016         1.07         631.52           2/29/2016         1.07         631.52         61/2016         0.95         631.61           9/23/2017         0.86         631.73         1/27/2018         0.88         631.71           3/2/2017         0.86         631.73         1/27/2018         0.85         631.73           1/27/2018         0.82         7/29/2014         4.45         628.38         6/1/2016         2.29         632.83         2.5-5         1/21/2/2015         3.42         629.41         1/2/2/2015				6/1/2016	3.67	627.33
Image: Network of the sector of the				9/8/2016	3.83	627.13
W-33 (Perched)         632.59         2.5-5         1/2/2014 1/27/2018         3.26         627.47 627.47           MW-33 (Perched)         632.59         2.5-5         1/21/2014         1.09         631.50           7/29/2014         2.14         630.45         631.50           7/29/2014         1.55         631.04           12/17/2015         1.21         631.38           2/29/2016         1.09         631.52           630.79         9/8/2016         1.09         631.52           12/2/2016         0.95         631.64         33/2/2017           0.86         631.71         5/4/2017         0.86         631.73           11/27/2018         0.85         631.74         632.83         2.5-5           11/27/2018         0.85         631.73         632.83         9/23/2014         4.45         628.38           9/23/2014         4.45         628.38         611.74         12/2/2016         2.08         631.73           11/27/2018         3.02         630.79         9/8/2016         2.09         630.24           12/21/2015         3.42         629.41         12/2/2016         2.50         630.33           3/2/2017         2.75         63				12/2/2016	3.40	627.56
Sid         Sid         Sid         Sid         Sid           MW-33         632.59         2.5-5         1/21/2014         1.09         631.50           (Perched)         3.54         627.41         1.09         631.50           9/23/2014         1.55         631.04         10.71         631.52           9/23/2014         1.55         631.04         12.17         631.52           9/8/2016         1.07         631.50         9/8/2016         1.07         631.52           12/2/2016         0.95         631.64         37/2017         0.88         631.71           5/4/2017         0.91         631.68         631.73         11/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2014         4.45         628.38         6/1/2015         3.42         629.41         12/2/2016         2.83         6/1/2016         2.04         630.79         9/8/2016         2.55         630.24         12/2/2016         2.55         630.24         12/2/2016         2.55         630.24         12/2/2016         2.55         630.24         12/2/2016         2.55         630.24         12/2/2016         2.55         630.24         12/2/2016         2.55 </td <td></td> <td></td> <td></td> <td>3/2/2017</td> <td>3.26</td> <td>627.70</td>				3/2/2017	3.26	627.70
B/28/2017         3.55         627.41           11/27/2018         3.54         627.42           MW-33         632.59         2.5-5         1/21/2014         1.09         631.50           (Perched)         9/23/2014         1.55         631.04         12/2/2016         1.07         631.38           2/29/2016         1.09         631.50         6/1/2016         1.09         631.52           6/1/2016         0.95         631.64         3/2/2017         0.88         631.71           5/4/2017         0.91         631.68         631.73         11/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2014         4.31         628.52           7/29/2014         4.45         628.38         631.74           MW-34         632.83         2.5-5         1/21/2014         4.31         628.52           7/29/2014         4.45         628.38         631.74         12/2/2015         3.32         629.80           2/29/2016         1.95         630.33         32/2017         2.95         630.24         2/29/2016         1.95         630.33           2/29/2016         2.50         630.33         32/2/2017         2.9				5/4/2017	3.49	627.47
meta         meta         1/27/2018         3.54         627.42           (Perched)         632.59         2.5-5         1/21/2014         1.109         631.50           (Perched)         7/29/2014         2.14         630.45         30.45           2/29/2016         1.07         631.52         617.20         617.20           6/1/2016         1.09         631.50         9/8/2016         1.07         631.52           12/2/2016         0.95         631.64         33/2/2017         0.88         631.71           5/4/2017         0.91         631.68         631.73         11/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2014         4.45         628.38         631.74           MW-34         632.83         2.5-5         1/21/2014         4.45         628.38         631.74           MW-34         632.83         2.5-5         1/21/2014         4.45         628.38         631.74           MW-34         632.83         2.5-5         1/21/2015         3.42         629.41         12/2/2015         3.42         629.41           12/2/2015         3.42         628.39         61/2016         2.59         630.33 </td <td></td> <td></td> <td></td> <td>8/28/2017</td> <td>3.55</td> <td>627.41</td>				8/28/2017	3.55	627.41
MW-33 (Perched)         632.59         2.5-5         1/21/2014 9/23/2014         1.09         631.50           (Perched)         7799/2014         2.14         630.45         631.51           9/23/2014         1.55         631.04         10/27/2015         1.21         631.38           2/29/2016         1.00         631.52         631.64         3/2/2017         0.98         631.71           9/8/2017         0.91         631.68         631.73         11/27/2018         0.85         631.73           MW-34         632.83         2.5-5         1/21/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2018         3.42         629.41           1/21/2014         4.45         628.38         6/12/2015         3.42         629.41           1/21/2015         3.03         629.80         2/29/2016         1.55         630.88           6/12/2015         3.42         629.41         12/2/2016         2.55         630.33         32/2017         2.95         629.88           1/2/2/2016         2.55         1/21/2014         DRY         DRY </td <td></td> <td></td> <td></td> <td>11/27/2018</td> <td>3.54</td> <td>627.42</td>				11/27/2018	3.54	627.42
(Perched)         7/29/2014         2.14         50.45           9/23/2014         1.55         631.04           12/17/2015         1.21         631.32           0/32/2016         1.07         631.52           0/32/2016         1.09         631.52           0/1/2016         1.09         631.52           0/1/2/2016         0.95         631.64           3/2/2017         0.88         631.73           MW-34         632.83         2.5-5         1/21/2018         0.85           11/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/21/2014         4.31         628.52           (Perched)         9/23/2014         4.45         628.38         6/12/2015         3.42         629.41           12/2/2016         1.95         630.88         6/12/2015         3.69         6/12/2015         6.90         3.3           12/2/2016         2.59         630.33         3/2/2017         2.75         630.08           5/4/2017         3.93         628.90         5/4/2017         3.93         628.90           9/8/2016         2.59         630.24         6/1/2/2016         3.86         628.57	MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
9/23/2014         1.5.5         631.04           12/17/2015         1.21         631.38           2/29/2016         1.07         631.50           9/8/2016         1.07         631.50           9/8/2016         1.07         631.50           9/8/2016         0.95         631.64           3/2/2017         0.86         631.71           5/4/2017         0.91         631.68           1/27/2018         0.85         631.74           1/27/2018         0.85         631.73           1/27/2018         0.85         632.83           2.5-5         1/21/2014         4.45         628.38           9/23/2014         4.45         628.38           6/12/2015         3.03         629.80           2/29/2016         2.59         630.24           12/17/2015         3.03         628.90           9/8/2016         2.59         630.24           12/2/2016         2.50         630.33           3/2/2017         2.95         629.88           11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY           9/8/2015	(Perched)			7/29/2014	2.14	630.45
MW-34         632.83         2.5-5         1/21/2015         1.21         631.52           MW-34         632.83         2.5-5         1/21/2016         0.95         631.64           3/2/2017         0.88         631.71         635.85         631.74           MW-34         632.83         2.5-5         1/21/2018         0.85         631.73           MW-34         632.83         2.5-5         1/21/2014         4.31         628.52           P(erched)         7/29/2016         1.95         630.88         611.74           MV-34         632.83         2.5-5         1/21/2014         4.31         628.52           P(erched)         7/29/2016         1.95         630.88         612/2015         3.42         629.41           12/2/2016         2.04         630.79         630.24         12/2/2016         2.50         630.33           6/12/2016         2.59         630.24         12/2/2016         2.59         630.44           12/2/2016         2.59         630.24         12/2/2017         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY         DRY           9/23/2014         DRY				9/23/2014	1.55	631.04
MW-34         632.83         2.5-5         1.1/2/2016         1.07         631.50           9/8/2016         1.07         631.52         1.1/2/2016         0.95         631.64           3/2/2017         0.88         631.71         631.68         631.73           11/27/2018         0.85         631.74         632.83         2.5-5         1/2/1/2014         4.31         628.52           (Perched)         7/29/2014         4.45         628.38         6/12/2015         3.42         629.41           12/17/2015         3.03         629.80         2/2/9/2016         2.59         630.24           12/2/2016         2.59         630.24         12/2/2016         2.59         630.24           12/2/2016         2.59         630.33         3/2/2017         2.95         629.48           12/2/2016         2.59         630.34         12/2/2016         2.59         630.34           12/2/2016         2.59         630.38         6/1/2017         3.93         628.90           6/1/2/2017         3.93         628.90         6/29.21         MW-34         632.55         2.5-5         1/2/1/2014         DRY         DRY           (Perched)         632.55         2.5-5				12/1//2015	1.21	631.38
MW-34         632.83         2.5-5         1/2/2/016         0.95         631.64           MW-34         632.83         2.5-5         1/2/2/017         0.88         631.71           MW-34         632.83         2.5-5         1/2/2/014         4.31         628.52           (Perched)         7/29/2015         3.03         629.80         631.74           MW-34         632.83         2.5-5         1/2/1/2014         4.31         628.52           (Perched)         7/29/2016         1.95         630.88         631.74           9/3/2016         2.59         630.88         61/2/2015         3.03         629.80           2/29/2016         1.95         630.88         63/2/2017         2.75         630.08           6/1/2016         2.59         630.33         3/2/2017         2.75         630.08           5/4/2017         3.93         628.90         6/2/21         7/29/2016         2.59         629.88           11/27/2018         3.62         629.21         7/29/2014         DRY         DRY           Perched)         632.55         2.5-5         1/21/2014         DRY         DRY           9/3/2015         DRY         DRY         DRY				2/29/2010	1.07	631.52
MW-34         632.83         2.5-5         1/2/2016         0.95         631.64           MW-34         632.83         2.5-5         1/1/27/2018         0.85         631.74           MW-34         632.83         2.5-5         1/1/27/2014         4.31         628.52           (Perched)         9/23/2014         4.45         628.38         612/2015         3.42         629.41           12/17/2015         3.03         629.80         2/29/2016         1.95         630.88           6/12/2015         3.42         629.41         12/17/2015         3.03         628.80           2/2/2016         2.59         630.24         12/2/2016         2.59         630.24           12/2/2016         2.50         630.33         3/2/2017         2.95         629.88           11/27/2018         3.62         629.21         11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY         DRY           (Perched)         9/8/2015         DRY         DRY         DRY         027.99         628.55           9/8/2016         4.13         628.45         629.83         628.70         3/2/2017         3.86 <td></td> <td></td> <td></td> <td>0/1/2010</td> <td>1.09</td> <td>631.50</td>				0/1/2010	1.09	631.50
MW-34         632.83         2.5-5         1/2/2017         0.88         631.71           (Perched)         632.83         2.5-5         1/21/2014         4.31         6628.52           (Perched)         7/29/2014         4.45         628.38           9/23/2014         4.45         628.38           9/23/2014         4.45         628.38           9/23/2014         4.45         628.38           6/1/2015         3.03         630.79           9/8/2016         2.59         630.24           12/2/2016         2.59         630.33           3/2/2017         2.75         630.08           6/1/2016         2.50         633.33           3/2/2017         2.95         629.89           8/28/2017         2.95         629.88           11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY           9/8/2015         DRY         DRY         9/8/2015           9/8/2015         4.97         627.58           9/8/2015         A.97         627.58           9/8/2016         4.13         628.45           2/2/9/2016         3.86				12/2/2016	0.95	631.64
MW-34 (Perched)         632.83         2.5-5         1/21/2018 7/29/2014         0.86         631.73           MW-34 (Perched)         632.83         2.5-5         1/21/2014         4.31         628.52           7/29/2014         4.45         628.38         6/12/2015         3.42         629.80           9/23/2016         1.95         630.88         6/12/2015         3.42         629.80           2/29/2016         1.95         630.88         6/12/2016         2.59         630.24           12/17/2015         2.04         630.79         9/8/2016         2.59         630.08           6/12/2017         2.75         630.08         5/4/2017         3.93         628.90           8/28/2017         2.95         630.82         629.21         11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY         PRY           9/8/2015         DRY         DRY         12/17/2015         4.10         628.45           2/29/2016         3.86         628.70         3/2/2017         3.94         628.61           5/4/2017         3.94         628.61         5/4/2017         4.58         627.77				3/2/2017	0.88	631.71
8/28/2017         0.86         631.73           MW-34         632.83         2.5-5         11/27/2018         0.85         631.74           (Perched)         632.83         2.5-5         7/29/2014         4.43         628.52           (Perched)         7/29/2014         4.45         628.38         6/12/2015         3.42         629.41           12/17/2015         3.03         629.80         2/29/2016         1.95         630.88           6/12/2016         2.59         630.24         632.79         9/8/2016         2.59         630.33           3/2/2017         2.75         630.08         6/1/2016         2.59         630.33           3/2/2017         2.95         629.88         11/27/2018         3.62         629.90           8/28/2017         2.95         632.55         2.5-5         1/21/2014         DRY         DRY           P(Perched)         632.55         2.5-5         1/21/2014         DRY         DRY           9/8/2015         DRY         DRY         DRY         DRY           9/8/2016         4.13         628.45         2/29/2016         3.86         628.69           6/1/2015         DRY         DRY         DRY <td< td=""><td></td><td></td><td></td><td>5/4/2017</td><td>0.91</td><td>631.68</td></td<>				5/4/2017	0.91	631.68
Image: mark mark mark mark mark mark mark mark				8/28/2017	0.86	631.73
MW-34 (Perched)         632.83         2.5-5         1/21/2014         4.31         628.52           (Perched)         7/29/2014         4.45         628.38           6/12/2015         3.42         629.41           12/17/2015         3.03         629.80           2/29/2016         1.95         630.88           6/12/2016         2.59         630.24           12/2/2016         2.59         630.24           12/2/2016         2.59         630.33           3/2/2017         2.95         629.80           8/28/2017         2.95         629.88           8/28/2017         2.95         629.88           11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY           9/23/2014         DRY         DRY         PY           (Perched)         7/29/2014         DRY         DRY           9/8/2015         DRY         ORY         PX           9/23/2014         DRY         DRY         PY           9/8/2015         J.0         628.69         6/1/2016         3.86         628.69           6/1/2016         3.85         628.79         6/				11/27/2018	0.85	631.74
(Perched)       7/29/2014       4.45       628.38         9/23/2014       4.45       628.38         6/12/2015       3.42       629.41         12/17/2015       3.03       629.80         2/29/2016       1.95       630.88         6/1/2016       2.04       630.79         9/8/2016       2.59       630.24         12/2/2016       2.50       630.33         3/2/2017       2.75       630.08         5/4/2017       2.95       629.88         11/27/2018       3.62       629.21         MW-35       632.55       2.5-5       1/21/2014       DRY       DRY         9/8/2015       DRY       02/3/2014       DRY       DRY         9/8/2015       DRY       DRY       02/2.5         9/8/2015       DRY       DRY       02/2.5         9/8/2015       DRY       DRY       02/2.5         9/8/2016       4.13       628.45       2/2.9/2.016         12/17/2015       4.10       628.45       2/2.9/2.016         9/8/2016       4.13       628.70       3/2/2.017         12/12/2016       3.86       627.97       627.55         9/8/2016       <	MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
MW-46 (Groundwater)         630.98         10-20         1/21/2015         3.42         629.41           12/17/2015         3.03         629.80         2/29/2016         1.95         630.88           12/17/2016         2.04         630.79         9/8/2016         2.59         630.24           12/2/2016         2.50         630.33         3/2/2017         2.75         630.08           5/4/2017         3.93         628.90         8/28/2017         2.95         629.88           11/27/2018         3.62         629.21         0.08         5/4/2017         3.93         628.90           8/28/2017         2.95         632.55         2.5-5         1/21/2014         DRY         DRY           9/23/2014         DRY         DRY         0.08         9/21/2015         4.97         627.58           9/8/2015         DRY         DRY         0.04         12/17/2015         4.10         628.66           9/8/2016         3.86         628.69         6/1/2016         3.99         628.56           9/8/2016         4.13         628.42         12/2/2016         3.85         628.77           11/27/2018         3.98         628.57         6/1/2016         5.30         62	(Perched)			7/29/2014	4.45	628.38
MW-46         630.98         10-20         3.42         629.41           12/17/2015         3.03         629.80         2/29/2016         1.95         630.88           6/1/2016         2.04         630.79         9/8/2016         2.59         630.24           12/2/2016         2.59         630.24         12/2/2016         2.55         630.33           3/2/2017         2.75         630.08         5/4/2017         3.93         628.90           8/28/2017         2.95         629.81         11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           9/8/2015         DRY         DRY         DRY         04         6/12/2015         4.97         6/27.58           9/8/2015         DRY         DRY         DRY         04         12/2/9/2016         3.86         628.69         6/1/2016         3.99         628.56         9/8/2016         4.13         628.42         12/2/2/2016         3.85         628.77         7         3/2/2017         4.16         628.39         11/27/2018         3.98         628.57         6/1/2016         5.30         625.51         9/2/2/2014         5.47         625.51				9/23/2014	4.45	628.38
MW-35         632.55         2.5-5         1/2/1/2015         3.03         629.60           MW-35         632.55         2.5-5         1/2/1/2016         2.59         630.24           1/2/2/2016         2.59         630.33         3/2/2017         2.75         630.08           8/28/2017         2.95         629.80         3/2/2017         2.95         629.88           11/27/2018         3.62         629.21         0.08         5/4/2017         2.95         629.88           11/27/2018         3.62         629.21         0.08         5/4/2017         2.95         629.88           11/27/2018         3.62         629.21         0.08         0.08         0.08         0.08           (Perched)         7/29/2014         DRY         DRY         0.08         0.07         0.08         0.08         0.07         0.08         0.08         0.07         0.08         0.08         0.07         0.08         0.08         0.08         0.07         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08				6/12/2015	3.42	629.41
WW-35         632.55         2.5-5         1/21/2016         2.04         630.79           MW-35         632.55         2.5-5         1/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           9/8/2017         2.95         629.88         11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           9/8/2015         4.97         627.58         9/8/2015         DRY         DRY           9/8/2015         4.97         628.45         2/29/2016         3.86         628.45           2/29/2016         3.86         628.45         2/29/2016         3.86         628.45           9/8/2015         DRY         DRY         DRY         3/2/2017         3.94         628.45           11/27/2018         3.98         628.57         3/2/2017         4.16         628.39           9/8/2017         4.16         628.39         621/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/				12/1//2015	3.03 1.0E	629.80
MW-46         630.98         10-20         2.59         630.24           12/2/2016         2.50         630.33         3/3/2/2017         2.75         630.08           3/2/2017         2.75         630.08         5/4/2017         3.93         628.90           8/28/2017         2.95         629.88         11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           9/23/2014         DRY         DRY         0RY         0RY           9/23/2015         4.97         627.58         9/8/2015         0.08         0.08           9/8/2015         J.10         628.45         2/29/2016         3.86         628.69           6/12/2015         4.10         628.45         2/29/2016         3.85         628.70           3/2/2017         3.94         628.61         5/4/2017         4.16         628.39           11/27/2018         3.98         628.57         6/1/2016         3.85         628.77           (Groundwater)         630.98         10-20         1/21/2014         5.50         625.48           9/8/2015         4.17         626.81         2/29/2016         5.23				6/1/2016	2.95	630.00
MW-46         630.98         10/2/2016         2.50         630.33           MW-46         630.58         11/2/2017         2.75         630.08           632.55         2.5-5         1/21/2017         2.95         629.88           11/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           9/23/2014         DRY         DRY         DRY         DRY           9/8/2015         4.97         627.58         628.45           9/8/2015         DRY         DRY         DRY           9/8/2015         DRY         DRY         DRY           9/8/2016         3.86         628.45         2/29/2016           3/2/2017         3.94         628.61         628.70           3/2/2017         3.94         628.61         628.57           11/27/2018         3.98         628.57         625.51           9/8/2015         5.10         625.77         627.58           630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.41         625.57           6/1/2016         5.30         625.				9/8/2016	2.04	630.24
MW-46 (Groundwater)         630.98         10-20         1/2/2017         3.93         628.90           MW-45         632.55         2.5-5         1/21/2014         DRY         DRY           Perched)         632.55         2.5-5         1/21/2014         DRY         DRY           9/23/2014         DRY         DRY         DRY         DRY           9/8/2015         DRY         DRY         DRY           9/8/2015         DRY         DRY         DRY           9/8/2015         DRY         DRY         DRY           12/17/2015         4.10         628.45         2/29/2016         3.86         628.69           6/1/2016         3.99         628.56         9/8/2016         4.13         628.42           12/2/2016         3.85         628.70         3/2/2017         4.16         628.39           9/8/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         9/8/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68				12/2/2016	2.50	630.33
MW-35         632.55         2.5-5         1/27/2018         3.62         629.88           (Perched)         632.55         2.5-5         1/21/2014         DRY         DRY           9/23/2014         DRY         DRY         DRY         DRY           9/23/2014         DRY         DRY         DRY           9/8/2015         4.97         627.58           9/8/2015         DRY         DRY           12/17/2016         3.86         628.45           2/29/2016         3.86         628.69           6/1/2016         3.99         628.56           9/8/2015         4.10         628.45           12/17/2016         3.85         628.70           3/2/2017         3.94         628.61           5/4/2017         4.58         627.97           8/28/2017         4.16         628.39           11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         630.98         10-20         1/21/2014         5.23         625.75           6/1/2016         5.30         625.58         6/1/2015         5.50         625				3/2/2017	2.75	630.08
MW-35         632.55         2.5-5         1/1/27/2018         3.62         629.21           MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           (Perched)         9/23/2014         DRY         DRY         DRY           9/23/2014         DRY         DRY         DRY           9/23/2015         4.97         627.58           9/8/2015         DRY         DRY           9/8/2015         4.10         628.45           2/29/2016         3.86         628.69           6/1/2016         3.99         628.56           9/8/2016         4.13         628.42           12/2/2016         3.85         628.70           3/2/2017         3.94         628.61           5/4/2017         4.58         627.97           8/28/2017         4.16         628.39           11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         630.98         10-20         1/21/2014         5.23         625.90           6/12/2015         5.50         625.48         9/8/2015         4.17				5/4/2017	3.93	628.90
MW-35         632.55         2.5-5         1/21/2014         DRY         DRY           (Perched)         9/23/2014         DRY         DRY         DRY           9/23/2014         DRY         DRY         DRY           9/23/2014         DRY         DRY         DRY           9/23/2015         4.97         627.58         9/8/2015         DRY           12/17/2015         4.10         628.45         2/29/2016         3.86         628.69           6/1/2016         3.99         628.56         9/8/2016         4.13         628.42           12/2/2016         3.85         628.70         3/2/2017         3.94         628.61           5/4/2017         4.58         627.97         8/28/2017         4.16         628.39           11/27/2018         3.98         628.57         6/12/2015         5.51         6/12/2015           MW-46         630.98         10-20         1/21/2014         5.47         625.51           9/8/2015         4.17         626.81         2/29/2016         5.23         625.75           6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           9/8/2016         5.41         625.57 </td <td></td> <td></td> <td></td> <td>8/28/2017</td> <td>2.95</td> <td>629.88</td>				8/28/2017	2.95	629.88
MW-35 (Perched)         632.55         2.5-5         1/21/2014 7/29/2014         DRY         DRY           9/23/2014         DRY         DRY         DRY         DRY           9/8/2015         4.97         627.58         9/8/2015         DRY         DRY           2/29/2016         3.86         628.45         2/29/2016         3.86         628.69         6/1/2016         3.99         628.56           9/8/2016         4.13         628.42         12/2/2016         3.85         628.70           3/2/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.47         625.51           9/23/2014         5.08         625.90         6/12/2015         5.50         625.48           9/8/2015         4.17         625.51         9/8/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           6/1/2016 </td <td></td> <td></td> <td></td> <td>11/27/2018</td> <td>3.62</td> <td>629.21</td>				11/27/2018	3.62	629.21
(Perched)       //29/2014       DRY       DRY         9/23/2014       DRY       DRY         9/23/2015       4.97       627.58         9/8/2015       DRY       DRY         12/17/2015       4.10       628.45         2/29/2016       3.86       628.69         9/8/2015       0.10       628.45         9/8/2016       4.13       628.42         12/2/2016       3.85       628.70         3/2/2017       3.94       628.61         5/4/2017       4.16       628.39         11/27/2018       3.98       628.57         MW-46       630.98       10-20       1/21/2014       5.21       625.77         (Groundwater)       7/29/2014       5.47       625.51       9/8/2015       4.17       626.81         9/8/2015       4.17       626.81       2/29/2016       5.23       625.75         6/1/2016       5.30       625.68       9/8/2015       4.17       626.81         9/8/2015       4.17       626.81       2/29/2016       5.23       625.75         6/1/2016       5.30       625.68       9/8/2016       5.41       625.57         12/2/2016       5.41	MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
MW-46 (Groundwater)         630.98 (30.98)         10-20         1/21/2014 (30.98)         DRY (30.98)         DRY (30.98)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (32/29/2016)         5.21 (32/2017)         628.73 (399)         628.69 (628.69)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (32/2017)         5.98 (32/2017)         628.77 (394)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (32/2014)         5.21 (32/2014)         625.77 (6/12/2015)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (22/9/2014)         5.21 (22/9/2014)         625.77 (25.51 (22/9/2014)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (21/2015)         5.50 (25.78)           MW-46 (Groundwater)         630.98         10-20         1/21/2014 (22/9/2014)         5.41 (22/9/2014)           MW-46 (Groundwater)         630.98         10-20 (3/2/2017)         1/21/2014 (22/9/2016)         5.23 (25.75)           MW-46 (Groundwater)         630.98 (3/2/2017)         1/21/2014 (22/9/2016)         5.23 (25.75)           MW-46 (Groundwater)         630.98 (3/2/2017)         5.00 (25.48)         625.75 (25.48)           MW-46 (Groundwater)         1/2/2/2016 (22.92)(2016)         5.41 (22.92)(2016)	(Perched)			//29/2014	DRY	DRY
MW-46         630.98         10-20         1/2/12/014         5.21         627.35           MW-46         630.98         10-20         1/2/17/2015         4.10         628.45           2/29/2016         3.86         628.69         6/1/2016         3.99         628.56           9/8/2016         4.13         628.42         12/2/2016         3.85         628.70           3/2/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/1/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2017         5.00         625.48           9/8/2017				9/23/2014 6/12/2015		
MW-46         630.98         10-20         1/21/2015         4.10         628.45           12/2/29/2016         3.86         628.69         6/1/2016         3.99         628.56           9/8/2016         4.13         628.42         12/2/2016         3.85         628.70           3/2/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         628.57         628.70         3/2/2017           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/1/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           12/2/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2017         5.00         625.98           3/2/2017         5.00         625.48         8/28/2017         4.44         626.54           11/27/2018				9/8/2015	DRY	027.30 DRY
MW-46         630.98         10-20         1/21/2016         3.86         628.69           9/8/2016         4.13         628.42         12/2/2016         3.85         628.70           3/2/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/8/2015         4.17         626.81           2/29/2016         5.23         625.70         6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68         9/8/2015         4.17         626.81         2/29/2016         5.23         625.75         6/1/2016         5.30         625.68         9/8/2016         5.41         625.57         6/1/2016         5.30         625.68         9/8/2017         5.00         625.48         626.02         3/2/2017         5.00         625.48         625.90         6/1/2016         5.41         625.57         6/2/				12/17/2015	4.10	628.45
MW-46         630.98         10-20         1/21/2016         3.99         628.56           9/8/2016         4.13         628.42           12/2/2016         3.85         628.70           3/2/2017         3.94         628.61           5/4/2017         4.58         627.97           8/28/2017         4.16         628.39           11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         630.98         10-20         1/21/2014         5.41         625.51           9/23/2014         5.08         625.90         6/12/2015         5.50         625.48           9/8/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           12/2/2016         4.96         626.02         3/2/2017         5.00         625.48           9/8/2017         5.50         625.48         8/28/2017         4.44         626.54           12/2/2016         5.41         625.57         625.48         8/28/2017         5.41         625.57				2/29/2016	3.86	628.69
MW-46         630.98         10-20         1/21/2016         3.85         628.70           12/2/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2016         5.41         625.57           6/1/2016         5.30         625.48         9/8/2016         5.41         625.57           12/2/2016         4.96         626.02         3/2/2017         5.00         625.48           9/8/2017         5.50         625.48         8/28/2017         4.44         626.54           8/28/2017         4.44         626.54         11/27/2018         5.41         625.57				6/1/2016	3.99	628.56
MW-46         630.98         10-20         1/21/2016         3.85         628.70           11/27/2017         3.94         628.61         5/4/2017         4.58         627.97           8/28/2017         4.16         628.39         11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.71           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2015         4.17         626.81         2/29/2016         5.41         625.57           6/1/2016         5.30         625.68         9/8/2017         5.00         625.98           3/2/2017         5.00         625.98         5/4/2017         5.00         625.98           5/4/2017         5.50         625.48         8/28/2017         4.44         626.54           8/28/2017         4.44         626.54         11/27/2018         5.41         625.57				9/8/2016	4.13	628.42
MW-46         630.98         10-20         1/21/2014         5.21         625.57           (Groundwater)         630.98         10-20         1/21/2014         5.21         625.77           9/23/2014         5.47         625.51         9/23/2014         5.68         625.90           6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           12/2/2016         5.41         625.57         12/2/2017         5.00         625.48           9/8/2015         4.17         626.81         2/29/2016         5.41         625.57           12/2/2016         5.30         625.68         9/8/2017         5.00         625.48           9/8/2017         5.50         625.48         8/28/2017         4.44         626.54           11/27/2018         5.41         625.57         625.48         625.57         625.48				12/2/2016	3.85	628.70
S/4/2017         4.58         627.97           8/28/2017         4.16         628.39           11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/12/2015         4.17         626.81         2/29/2016         5.23         625.75           6/1/2016         5.30         625.68         9/8/2016         5.41         625.57           12/2/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2016         5.41         625.57           12/2/2017         5.00         625.98         5/4/2017         5.50         625.48           9/8/2016         5.41         625.57         12/2/2016         5.41         625.57           12/2/2017         5.00         625.48         8/28/2017         4.44         626.54           8/28/2017         4.44         626.54         11/27/2018         5.41         625.57				3/2/2017	3.94	628.61
8/28/2017         4.16         628.39           11/27/2018         3.98         628.57           MW-46         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         7/29/2014         5.47         625.51         9/23/2014         5.08         625.90           6/12/2015         5.50         625.48         9/8/2015         4.17         626.81           2/29/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2016         5.41         625.57           12/2/2016         5.30         625.48         9/8/2016         5.41         625.57           12/2/2016         5.23         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2017         5.00         625.98           5/4/2017         5.50         625.48         8/28/2017         4.44         626.54           11/27/2018         5.41         625.57         625.57         625.48         625.57				5/4/2017	4.58	627.97
MW-46         630.98         10-20         1/21/2018         3.98         628.57           (Groundwater)         630.98         10-20         1/21/2014         5.21         625.77           (Groundwater)         9/23/2014         5.08         625.90         6/12/2015         5.50         625.48           9/8/2015         4.17         626.81         2/29/2016         5.23         625.75           6/12/2015         5.10         625.75         6/1/2016         5.30         625.68           9/8/2016         5.41         625.57         12/2/2016         4.96         626.02           3/2/2017         5.00         625.98         5/4/2017         5.50         625.48           8/28/2017         4.44         626.54         11/27/2018         5.41         625.57				8/28/2017	4.16	628.39
MW-46 630.98 10-20 1/21/2014 5.21 625.77 (Groundwater) 7/29/2014 5.47 625.51 9/23/2014 5.08 625.90 6/12/2015 5.50 625.48 9/8/2015 4.17 626.81 2/29/2016 5.23 625.75 6/1/2016 5.30 625.68 9/8/2016 5.41 625.57 12/2/2016 4.96 626.02 3/2/2017 5.00 625.98 5/4/2017 5.50 625.48 8/28/2017 4.44 626.54 11/27/2018 5.41 625.57	NAVAL AC	(20.00	10.20	1/2//2018	3.98	628.57
(Gloundwater)       7/25/2114       5.47       602.51         9/23/2014       5.08       625.90         6/12/2015       5.50       625.48         9/8/2015       4.17       626.81         2/29/2016       5.23       625.75         6/1/2016       5.30       625.68         9/8/2016       5.41       625.57         12/2/2016       4.96       626.02         3/2/2017       5.00       625.98         5/4/2017       5.50       625.48         8/28/2017       4.44       626.54         11/27/2018       5.41       625.57	MW-46 (Groupdwater)	630.98	10-20	1/21/2014	5.21	625.77
9/2/2014         5.00         622.50           6/12/2015         5.50         625.48           9/8/2015         4.17         626.81           2/29/2016         5.23         625.75           6/1/2016         5.30         625.68           9/8/2016         5.41         625.57           12/2/2016         4.96         626.02           3/2/2017         5.00         625.48           9/8/2017         5.50         625.88           9/8/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57	(Groundwater)			0/23/2014	5.47	625.00
9/12/12015         5.30         622.140           9/8/2015         4.17         626.81           2/29/2016         5.23         625.75           6/1/2016         5.30         625.68           9/8/2016         5.41         625.57           12/2/2016         4.96         626.02           3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				6/12/2017	5.50	625.30
2/29/2016         5.23         625.75           6/1/2016         5.30         625.68           9/8/2016         5.41         625.57           12/2/2016         4.96         626.02           3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				9/8/2015	4.17	626.81
6/1/2016         5.30         625.68           9/8/2016         5.41         625.57           12/2/2016         4.96         626.02           3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				2/29/2016	5.23	625.75
9/8/2016         5.41         625.57           12/2/2016         4.96         626.02           3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				6/1/2016	5.30	625.68
12/2/2016         4.96         626.02           3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				9/8/2016	5.41	625.57
3/2/2017         5.00         625.98           5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				12/2/2016	4.96	626.02
5/4/2017         5.50         625.48           8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				3/2/2017	5.00	625.98
8/28/2017         4.44         626.54           11/27/2018         5.41         625.57				5/4/2017	5.50	625.48
Notos:				8/28/2017	4.44	626.54
	Notoci			11/2//2018	5.41	025.57

1. bgs - below ground surface.

Prepared by: EPW 01/04/2018 Checked by: TJG 01/05/2018 Reviewed by: AMF 02/05/2018

 1. bgs - below ground stratee.
 Frepared by: Erw 01/

 2. msl - above mean sea level.
 Checked by: TJG 01/

 3. btoc - below top of casing.
 Reviewed by: AMF 02/

 4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

# Table 3 French Drain Water Analytical Data

											-	
	Samp	ole ID	Samp	le ID	Samp	ole ID	Samp	le ID	Samp	ole ID	Samp	le ID
	FD100	417-01	FD1004	17-02	FD102	317-01	FD102	317-02	FD102	717-01	FD102	717-02
	Labora	tory ID	Laborat	ory ID	Labora	tory ID	Labora	tory ID	Labora	tory ID	Labora	tory ID
	171001	.22-001	1710012	22-002	171006	512-001	171006	12-002	171007	/39-001	171007	39-002
	Date Co	ollected	Date Co	llected	Date Co	ollected	Date Collected		Date Collected		Date Co	ollected
	10/4/20	17 09:30	10/4/201	7 09:30	10/23/2017 10:30		10/23/2017 10:30		10/27/2017 10:00		10/27/20	17 10:00
Metals												
Parameter:	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	1.68	mg/L	NA	mg/L	0.003 J-5	mg/L	NA	mg/L	0.003 J-5	mg/L
Barium	NA	mg/L	0.115	mg/L	NA	mg/L	0.059	mg/L	NA	mg/L	0.047	mg/L
Cadmium	NA	mg/L	0.0021	mg/L	NA	mg/L	0.0009 J-5	mg/L	NA	mg/L	ND	mg/L
Chromium	NA	mg/L	0.499	mg/L	NA	mg/L	0.023	mg/L	NA	mg/L	0.017	mg/L
Copper	NA	mg/L	0.2114 Dx10	mg/L	NA	mg/L	0.0086	mg/L	NA	mg/L	0.0068	mg/L
Iron	NA	mg/L	4.28	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.114	mg/L	NA	mg/L	0.030	mg/L	NA	mg/L	0.008	mg/L
Manganese	NA	mg/L	0.221	mg/L	NA	mg/L	0.003	mg/L	NA	mg/L	ND	mg/L
Nickel	NA	mg/L	0.102	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L
Selenium	NA	mg/L	0.0958	mg/L	NA	mg/L	0.0103	mg/L	NA	mg/L	0.0154	mg/L
Silver	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	0.023	mg/L	NA	mg/L	0.037	mg/L	NA	mg/L	0.006	mg/L
Mercury	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L	NA	mg/L	ND	mg/L
General Chemistry												
Parameter:	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units	Result	Units
Total Suspended Solids	14.4	mg/L	NA	mg/L	4.4 J-5	mg/L	NA	mg/L	2.2 J-5	mg/L	NA	mg/L
Total Dissolved Solids	440	mg/L	NA	mg/L	1,080	mg/L	NA	mg/L	1,440	mg/L	NA	mg/L

Prepared by: BCW 11/17/2017 Checked by: EPW 01/05/2018 Reviewed by: AMF 02/05/2018

Notes: 1) NA - Not Analyzed 2) ND - Not Detected 3) mg/L - milligrams per liter 4) J-5 - The associated concentration is an estimated value detected between the sample detection limit and the adjusted method detection limit. 5) Dx10 - Sample diluted by 10.



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Order ID: 17100122 Date: 10/11/2017 Page 1 of 14

Wednesday, October 11, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	Matrix	Collected	Analysis
17100122-001 17100122-002	FD100417-01	Liquid	10/4/2017 09:30	Total Dissolved Solids, Total Suspended Solids
	10100417-02	Liquid	10/4/2017 09:30	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zing
17100122-003	SO100417-01	Liquid	10/4/2017 10:15	Total Dissolved Solids, Total Suspended Solids
17100122-004	50100417-02	Liquid	10/4/2017 10:15	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead,
17100122-005	L0100417-01	Liquid	10/4/2017 11:00	Manganese, Mercury, Nickel, Selenium, Silver, Zinc Total Dissolved Solids, Total Supported Solida
17100122-006	L0100417-02	Liquid	10/4/2017 11:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Cll By J-

Charles Brungardt President





1

Order ID: 17100122 Date: 10/11/2017 Page 2 of 14

Exide Technologies Billy King

# Analytical Report

# Project Name: Raw Grab Samples Quarterly

Customer Sample ID: Oxidor Sample ID: Sample Received: Parameter	FD10 1710 10/4/2 SDL	0 <b>417-01</b> 0122-001 2017 MQL	Result	Sam	Matrix: aple Collected:	Liquid 10/4/2017 09	9:30	
General Chemistry Total Dissolved Solids Total Suspended Solids	20.0 1.0	50 5	44 14.4	0 mg/L 4 mg/L	Date Analyzed	Method SM-2540-C SM-2540-D	Analyst K.E.L. K.E.L.	Flags





Order ID: 17100122 Date: 10/11/2017 Page 3 of 14

Exide Technologies Billy King

# **Analytical Report**

# Project Name: Raw Grab Samples Quarterly

Customer Sample ID:	FD10	0417-02						
Oxidor Sample ID:	17100	)122-002			Matrix I	iquid		
Sample Received:	10/4/2	2017		Sam	inle Collected: 1	0/4/2047 0	0.20	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	5.30 Analyst	Flore
Metals						mounou	Analyst	ridys
Digested by method 200.8 on 10/10/17 at	09:10							
Arsenic	0.003	0.005	1.68	mg/L	10/10/17 14:23	200.8	SM	
Barium	0.003	0.005	0.115	mg/L	10/10/17 14:23	200.8	S.M	
Cadmium	0.0005	0.001	0.0021	mg/L	10/10/17 14:23	200.0	S.M	
Chromium	0.003	0.005	0.499	mg/L	10/10/17 14:23	200.8	S.M.	
Copper	0.0250	0.005	0.2114	mg/L	10/10/17 15:05	200.8	S.M.	D.10
Iron	0.25	0.5	4.28	mg/L	10/10/17 14:23	200.8	S.M	Dx10
Lead	0.003	0.005	0.114	mg/L	10/10/17 14:23	200.0	S.M.	
Manganese	0.001	0.002	0.221	mg/L	10/10/17 14:23	200.8	S.M	
Nickel	0.003	0.005	0.102	mg/L	10/10/17 14:23	200.8	S.M.	
Selenium	0.0025	0.005	0.0958	mg/L	10/10/17 14:23	200.8	S.M.	
Silver	0.001	0.001	ND	ma/L	10/10/17 14:23	200.0	S.IVI.	
Zinc	0.003	0.005	0.023	ma/l	10/10/17 14:23	200.0	S.IVI.	
Digested by method 245.1 on 10/06/17 at 0	09:04				10/11/14.20	200.0	5.IVI.	
Mercury	0.0001	0.0002	ND	mg/L	10/06/17 16:27	245.1	A.W.	





Order ID: 17100122 Date: 10/11/2017 Page 14 of 14

# Documentation

# PROJECT DESCRIPTION: Raw Grab Samples Quarterly

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	17100122			DUTEALL:	ws	SAMPLER JOS	EAC	LEVEDO	
ADRIEST     MARTINE MARK     MARTINE MARK     MARTINE MARK     MARTINE MARK       REDUCTION DEPENDENT TYPERS     FILE MARTINE MARK     MARTINE MARK     MARTINE MARK     MARTINE MARK       REDUCTION DEPENDENT TYPERS     MARTINE MARK     MARTINE MARK     MARTINE MARK     MARTINE MARK       REMORDARY DEPENDENT TYPERS     MARE     MARTINE MARK     MARTINE MARK     MARTINE MARK       REMORDARY DEPENDENT TYPERS     MARE     MARTINE MARK     MARTINE MARK     MARTINE MARK       REMORDARY DATE (B)     TABLE (B)     TABLE (B)     MARE (B)     MARK       REMORDARY DATE (B)     TO (D)     TO (D)     TO (D)     MARK     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)     TO (D)     MARK       SENDONTY DD)     TO (D)     TO (D)     TO (D)	INDUSTRY: EXIDE Technologies			U 30151 11	R INDERSTRY: Secondary	REPRESENTING: F	XIDE Techn	ologies	
волити и вереденититичей:         ВИТЕ         илиты         волиты         волиты         или волитичей:         или волитиче         или воли волитиче         или волитиче	ADDRESS: 7471 Fifth Street Prisco, Texas 75034			Scretting		SIGNATURE: Q	221 6	could	
Subscription         Date for the former and the second secon	INDUSTRY REPRESENTATIVE(S)	BILLY K	ing la e	KIDE				PRESERVATION / REA	IARKS
FDIOO417-01         10/04/17         9:30 ами         0         TDS-75S         9:6         HIN05/350ml Plastic         Amme           FDIOO417-01         10/04/177         9:30 ами         0         7DS-75S         5:0         HIN05/250ml Plastic         JM           SS0100417-01         10/04/177         10:15 ам         6         7DS-75S         5:0         HIN03/250ml Plastic         JM           S0100417-01         10/04/177         10:15 am         6         7DS-75S         13.3         Mont         Mont         JM           S0100417-01         10/04/177         11:00 am         6         7DS-75S         13.3         Mont         Mont         JM           LIO0417-02         10/04/177         11:00 am         6         7DS-75S         13.3         Mont         Mont         Mont         JM           LIO0417-02         10/04/177         11:00 am         6         7DS-75S         13.3         JM         Mont         Mont         JM         Mont         JM         JM </td <td>BAMPLE No. / DATE (8) IDENTIFICAT</td> <td>Tim</td> <td>E (5)</td> <td>SAMPL E TYPE</td> <td>ANALYSES REQUESTED</td> <td>H TIME</td> <td>INITIALS</td> <td>/ CONTAINERS A BAMPLES COOLS</td> <td>Pic Internet</td>	BAMPLE No. / DATE (8) IDENTIFICAT	Tim	E (5)	SAMPL E TYPE	ANALYSES REQUESTED	H TIME	INITIALS	/ CONTAINERS A BAMPLES COOLS	Pic Internet
EDIDOUTION     International Contraction     Internation     International Contraction     Internation     Internation     International Contr	Thoras No-Clybon	11 9:3	0 am	0	TDS-TSS 9.	e		Norre	516
Seloot17-01         10/14/17         10:15 ам.         с         705-755         50         H No3/350ml Plastic         10           Soloot17-01         10/04/17         10:15 ам.         с         705-755         12.3         H No3/350ml Plastic         10           Soloot17-01         10/04/17         11:00 am.         с         705-755         12.3         H No3/350ml Plastic         10           LIOO417-02         10/04/17         11:00 am.         c         705-755         12.3         H No3/250ml Plastic         10           LIOO417-02         10/04/17         11:00 am.         c         705-755         12.3         H No3/250ml Plastic         10           LIOO417-02         10/04/17         11:00 am.         c         705-755         12.3         10 <td< td=""><td>110101 10-11/0014</td><td>12.6</td><td>am.</td><td>Ð</td><td>AS, Ed, EU, Ma, N. 9. 49. Fe. Ba, C. 200</td><td>6</td><td></td><td>HN03/220mir Pr</td><td>14</td></td<>	110101 10-11/0014	12.6	am.	Ð	AS, Ed, EU, Ma, N. 9. 49. Fe. Ba, C. 200	6		HN03/220mir Pr	14
3000417-02     10.15 am.     6     53.05 cm/m 1/4 bit     10.15 am.     6     53.05 cm/m 1/4 bit     10.15 am.     0     10.004       1000417-02     10     10     04/17     11:00 am.     6     7.05 into 13.3     10.004       1000417-02     10     10     04/17     11:00 am.     6     7.05 into 13.3     10.004       1000417-02     10     10     04/17     11:00 am.     6     8.05 into 19.85 into 13.3     10.004       1000417-02     10     10     04/17     11:00 am.     6     8.05 into 19.85 into 13.3     10.004       1000417-02     10     04/17     11:00 am.     6     8.05 into 19.85 into 13.3     10.004       1000417-02     10     04/17     11:00 am.     6     8.05 into 19.85 into 10.004       11000417-02     10     04/17     11:00 am.     6     8.05 into 10.004       1110000417-02     10     04/17     11:00 am.     10.004     11.00       1110000417-02     10     10     04/17     11:00 am.     10.004       1110000417-01     11     110     110     110     110     110       1110000417-01     11     110     110     110     110     110       1111     110     110	Invivi 10-Lihoolas	101	S am.	U	TDS- 755 5	0.		20120	101-11-1
LIOO417-01     10/04/17     11:00 am.     6     7.05.755     12.3     None     Under     Under<	111-1 21-11-11-11-11-11-11-11-11-11-11-11-11-1		No.	9	25,20, CU, MR, W. 49.52	0.0		HN03/220WH	516
LIOO417-02     10/04/17     11:00 am     6     Relation with a set of the Hassel and the	160101 2010000	1.01 11			105.755	1.3		NONE	5
ILOOUTIT-021     10     10     117     11200 am.     6     PEC. BELIX POLITICO     PEC. BELIX POLITICO     PAIL	100/01 10-LILOOIT	17 11:0	Dam.	5	AS, CA, CU, MIR, N. HO	2.7		HN03/250ml.	plestic J.
RELINGUESTED BY: (Signature)     BATE     Conterly     Ring     Conterly       FIELD INFORMATION:     Raw Grad Samples     GU orterly     Kinq     C     C     C       E-MALE RESULTS TO:     B7111/y     Kinq     C     C     C     C       USE WASTE WATER REPORT FORMAT     BATE     TEME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME       RELINQUESTED BY: (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME       RELINQUESTER BY: (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME       RELINQUESTER BY: (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME       RELINQUESTER BY: (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME       RELINQUESTER BY: (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY: (Signature)     REPRESENTING     DATE     TIME	101 01 TO-LILOOIT	117 11:0	o am.	c	JEC. (Baict, VD. 79156)			and a sub-state of the state of	
FIELD INFORMATION: Raw Grad Samples QUONTFERTY     GUONTFERTY     King Q & Lide Com       E-MALE RESULTS TO: BTILIY King Q & Lide Com     E-MALE RESULTS TO: BTILIY King Q & Lide Com       USE WASTE WATER REPORT FORMAT     REFINITION       RELINOUTSHEED BY: (Signature)     REPRESENTING       PALE     CCH       RELINOUTSHEED BY: (Signature)     REPRESENTING       PALE     CH       RELINOUTSHEED BY: (Signature)     REPRESENTING       PALE     CH       RELINQUISHEED BY: (Signature)     REPRESENTING       PALE     CH       RELINQUISHEED BY: (Signature)     REPRESENTING       PALE     CH       RELINQUISHEED BY: (Signature)     REPRESENTING       RELINQUISHER BY: (Signature)     REPRESENTING									
FIELD INFORMATION: Raw Grad Samples GU Or + Er 1 Y     King @ Ericle.Com       EMALL RESULTS TO: B7111 Y     King @ Ericle.Com       LUSE WATER REPORT FORMAT     REFRESENTING       USE WATER REPORT FORMAT     REFRESENTING       Date     Concertent       RELINQUISHED BY: (Signature)     REPRESENTING       RELINQUISHED BY: (Signature)     REPRESENTING       Parte     10.0447       Print     RECEIVED BY: (Signature)       RELINQUISHED BY: (Signature)     REPRESENTING       Parte     10.0447       Parte     110       Parte     110       Parte     110       RELINQUISHED BY: (Signature)     REPRESENTING       RELINQUISHED BY: (Signature)     REPRESENTING       Parte     10       RELINQUISHED BY: (Signature)     REPRESENTING       RELINQUISHED BY: (Signature)     REPRESENTING       RELINQUISHED BY: (Signature)     REPRESENTING									
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LUSE WASTE WATER REPORT FORMAT     TEME     RECEIVED BY (Signature)     REPRESENTING     DATE     TIME       RELINQUISHED BY (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY (Signature)     REPRESENTING     DATE     TIME       Material     RELINQUISHED BY (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY (Signature)     REPRESENTING     DATE     TIME       RELINQUISHED BY (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY (Signature)     DATE     TIME       RELINQUISHED BY (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY (Signature)     DATE     DATE       RELINQUISHED BY (Signature)     REPRESENTING     DATE     TIME     RECEIVED BY (Signature)     REPRESENTING     DATE     TIME	E-M	ALL RESULTS TO	" BTIIV	X	9 W EFICE				
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RELINQUISHED BY: (Signature) REPRESENTING DATE 10/4/1/3:320pw/RECEIVED BY: (Signature) REPRESENTING DATE 1714 RELINQUISHED BY: (Signature) REPRESENTING DATE 17ME RECEIVED BY: (Signature) REPRESENTING DATE 1714	RELINQUISHED BY : (Signa	ture) REF	RESENTING	10-04-	17 1:10 pm	Do Murst	A.	CSH6 0	4/17/1/1/
Victoria and a states samples 2.7 °C	HIRS) : AB WHEELONE THE	Ature) Rei	RESENTING StfC RESENTING	10/4/	7 3:30pm/	RECEIVED BY : (Signature	(2)	REPRESENTING	<u>Ч-О 15:</u>
						Adlyn an	SAMPLES	2.2 °C	

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227





Tuesday, October 31, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples

Oxidor received 2 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
17100612-001	FD102317-01	Liquid	10/23/2017 10:30	Total Dissolved Solids, Total Suspended Solids
17100612-002	FD102317-02	Liquid	10/23/2017 10:30	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

Customer Sample ID:	FD102	2317-01						
Oxidor Sample ID:	17100	612-001			Matrix: L	.iquid		
Sample Received:	10/23/	/2017		Sam	ple Collected: 1	0/23/2017 1	0:30	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	20.0	25	1080	mg/L	10/24/17 12:40	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	4.4	l mg/L	10/24/17 15:40	SM-2540-D	K.E.L.	J-5





# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	<b>FD102</b> 17100 10/23/	2 <b>317-02</b> 612-002 2017		Sam	Matrix: L ple Collected: 1	.iquid 0/23/2017	10:30	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 10/27/17 at	11:37							
Arsenic	0.003	0.005	0.003	mg/L	10/30/17 17:02	200.8	S.M.	J-5
Barium	0.003	0.005	0.059	mg/L	10/30/17 17:02	200.8	S.M.	
Cadmium	0.0005	0.001	0.0009	mg/L	10/30/17 17:02	200.8	S.M.	J-5
Chromium	0.003	0.005	0.023	mg/L	10/30/17 17:02	200.8	S.M.	
Copper	0.0025	0.005	0.0086	mg/L	10/30/17 17:02	200.8	S.M.	
Iron	0.25	0.5	ND	mg/L	10/30/17 17:02	200.8	S.M.	
Lead	0.003	0.005	0.030	mg/L	10/30/17 17:02	200.8	S.M.	
Manganese	0.001	0.002	0.003	mg/L	10/30/17 17:02	200.8	S.M.	
Nickel	0.003	0.005	ND	mg/L	10/30/17 17:02	200.8	S.M.	
Selenium	0.0025	0.005	0.0103	mg/L	10/30/17 17:02	200.8	S.M.	
Silver	0.001	0.001	ND	mg/L	10/30/17 17:02	200.8	S.M.	
Zinc	0.003	0.005	0.037	mg/L	10/30/17 17:02	200.8	S.M.	
Digested by method 245.1 on 10/24/17 at	09:10			-				
Mercury	0.0001	0.0002	ND	mg/L	10/24/17 15:44	245.1	A.W.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD102317-01	17100612-001	Total Dissolved Solids	SM-2540-C	TDS01324_L
		Total Suspended Solids	SM-2540-D	TSS11735_L
FD102317-02	17100612-002	Mercury	245.1	MERC_09639_L
		Zinc	200.8	META_08470_L
		Silver	200.8	META_08470_L
		Selenium	200.8	META_08470_L
		Nickel	200.8	META_08470_L
		Manganese	200.8	META_08470_L
		Lead	200.8	META_08470_L
		Iron	200.8	META_08470_L
		Copper	200.8	META_08470_L
		Chromium	200.8	META_08470_L
		Cadmium	200.8	META_08470_L
		Barium	200.8	META_08470_L
		Arsenic	200.8	META_08470_L





### **QC Summary**

			Reference			Rec		RPD	
QC Тур	e Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBat	chID TDS_01324_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	1000 mg/L		1000 mg/L	101%	90-110%			
LCSD	Total Dissolved Solids	1000 mg/L		1000 mg/L	100%	90-110%	0.0%	0-5%	
Replicate	e Total Dissolved Solids	1060 mg/L	1080 mg/L	Ū			1.9%	0-5%	
QCBat	chID TSS11735_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	479 mg/L		500 mg/L	96%	85-115%			
LCSD	Total Suspended Solids	454 mg/L		500 mg/L	91%	85-115%	5.4%	0-15%	
Replicate	e Total Suspended Solids	34.0 mg/L	37.0 mg/L	-			8.5%	0-15%	
QCBat	chID MERC_09639_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0101 mg/L		0.01 mg/L	101%	85-115%			
LCSD	Mercury	0.0102 mg/L		0.01 mg/L	102%	85-115%	1.0%	0-25%	
MS	Mercury	0.0101 mg/L	ND	0.01 mg/L	101%	80-120%			
MSD	Mercury	0.0101 mg/L	ND	0.01 mg/L	101%	80-120%	0.0%	0-25%	
QCBat	chID META_08470_L								
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.476 mg/L		0.5 mg/L	95%	85-115%			
	Barium	0.496 mg/L		0.5 mg/L	99%	85-115%			
	Cadmium	0.4978 mg/L		0.5 mg/L	100%	85-115%			
	Chromium	0.496 mg/L		0.5 mg/L	99%	85-115%			
	Copper	0.4886 mg/L		0.5 mg/L	98%	85-115%			
	Iron	49.3 mg/L		50.5 mg/L	98%	85-115%			
	Lead	0.470 mg/L		0.5 mg/L	94%	85-115%			
	Manganese	0.474 mg/L		0.5 mg/L	95%	85-115%			
	Nickel	0.488 mg/L		0.5 mg/L	98%	85-115%			
	Selenium	0.5073 mg/L		0.5 mg/L	102%	85-115%			
	Silver	0.509 mg/L		0.5 mg/L	102%	85-115%			
	Zinc	0.491 mg/L		0.5 mg/L	98%	85-115%			
LCSD	Arsenic	0.492 mg/L		0.5 mg/L	98%	85-115%	3.3%	0-20%	
	Barium	0.484 mg/L		0.5 mg/L	97%	85-115%	2.4%	0-20%	
		-		-					





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_08470_L								
	Cadmium	0.4887 mg/L		0.5 mg/L	98%	85-115%	1.8%	0-20%	
	Chromium	0.497 mg/L		0.5 mg/L	99%	85-115%	0.2%	0-20%	
	Copper	0.5024 mg/L		0.5 mg/L	101%	85-115%	2.8%	0-20%	
	Iron	49.7 mg/L		50.5 mg/L	98%	85-115%	0.8%	0-20%	
	Lead	0.464 mg/L		0.5 mg/L	93%	85-115%	1.3%	0-20%	
	Manganese	0.478 mg/L		0.5 mg/L	96%	85-115%	0.8%	0-20%	
	Nickel	0.490 mg/L		0.5 mg/L	98%	85-115%	0.4%	0-20%	
	Selenium	0.5191 mg/L		0.5 mg/L	104%	85-115%	2.3%	0-20%	
	Silver	0.506 mg/L		0.5 mg/L	101%	85-115%	0.6%	0-20%	
	Zinc	0.499 mg/L		0.5 mg/L	100%	85-115%	1.6%	0-20%	
MS	Arsenic	0.491 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%			
	Barium	0.529 mg/L	0.04 mg/L	0.5 mg/L	98%	80-120%			
	Cadmium	0.4881 mg/L	ND	0.5 mg/L	98%	80-120%			
	Chromium	0.486 mg/L	ND	0.5 mg/L	97%	80-120%			
	Copper	0.4943 mg/L	0.014 mg/L	0.5 mg/L	96%	80-120%			
	Iron	47.5 mg/L	0.058 mg/L	50.5 mg/L	94%	80-120%			
	Lead	0.462 mg/L	ND	0.5 mg/L	92%	80-120%			
	Manganese	0.472 mg/L	0.004 mg/L	0.5 mg/L	94%	80-120%			
	Nickel	0.477 mg/L	0.001 mg/L	0.5 mg/L	95%	80-120%			
	Selenium	0.5219 mg/L	ND	0.5 mg/L	104%	80-120%			
	Silver	0.495 mg/L	ND	0.5 mg/L	99%	80-120%			
	Zinc	0.517 mg/L	0.042 mg/L	0.5 mg/L	95%	80-120%			
MSD	Arsenic	0.491 mg/L	0.001 mg/L	0.5 mg/L	98%	80-120%	0.0%	0-20%	
	Barium	0.528 mg/L	0.04 mg/L	0.5 mg/L	98%	80-120%	0.2%	0-20%	
	Cadmium	0.4897 mg/L	ND	0.5 mg/L	98%	80-120%	0.3%	0-20%	
	Chromium	0.489 mg/L	ND	0.5 mg/L	98%	80-120%	0.6%	0-20%	
	Copper	0.5032 mg/L	0.014 mg/L	0.5 mg/L	98%	80-120%	1.8%	0-20%	
	Iron	47.8 mg/L	0.058 mg/L	50.5 mg/L	95%	80-120%	0.6%	0-20%	
	Lead	0.461 mg/L	ND	0.5 mg/L	92%	80-120%	0.2%	0-20%	
	Manganese	0.474 mg/L	0.004 mg/L	0.5 mg/L	94%	80-120%	0.4%	0-20%	
	Nickel	0.482 mg/L	0.001 mg/L	0.5 mg/L	96%	80-120%	1.0%	0-20%	
	Selenium	0.5033 mg/L	ND	0.5 mg/L	101%	80-120%	3.6%	0-20%	
	Silver	0.500 mg/L	ND	0.5 mg/L	100%	80-120%	1.0%	0-20%	
	Zinc	0.526 mg/L	0.042 mg/L	0.5 mg/L	97%	80-120%	1.7%	0-20%	





### **Case Narrative**

Draiget Names Daw Creh Complete

Project Name.	Raw Grab Samples
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

#### Project Name: Raw Grab Samples

Receipt temp: <b>3.6 °C</b> Receipt method: <b>Custon</b> Custody seal intact: <b>Yes</b>	on Ice ner Courier		All sample	es / labels reco	eived intact: <b>Yes</b>
Customer Sample ID: FD102	317-01		Collected By:	Jose Aceved	0
Oxidor Sample ID: 17100	612-001		Collector Affiliation:	Exide Techno	ologies
Collected: 10/23/	17 10:30		Matrix:	Liquid	
Bottle Type 1000 mL Plastic	<u>Count</u> 1	<u>Collection Method</u> Grab	Parts / Interval	Indicated <u>Preservation</u> Temp	<u>рН</u> -
Customer Sample ID: FD102	317-02		Collected By:	Jose Aceved	0
Oxidor Sample ID: 17100	612-002		Collector Affiliation:	Exide Techno	ologies
Collected: 10/23/	17 10:30		Matrix:	Liquid	
<u>Bottle Type</u> 250 mL Plastic	<u>Count</u> 1	<u>Collection Method</u> Grab	<u>Parts / Interval</u>	Indicated <u>Preservation</u> HNO3	<u>рН</u> <2

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





Order ID: 17100612 Date: 10/31/2017 Page 9 of 9

## Documentation

#### PROJECT DESCRIPTION: Raw Grab Samples

12:50 ENTTIA LS TIME h A.F 3.6°C OK/04 HNo3 (250m.) plastic 1. Liter proceplastic PRESERVATION / REMARKS / CONTAINERS ALL SAMPLES COOL 56° C DATE ACEVEDO Occuredo DY1008 REPRESENTING REPRESENTING BCSA REPRESENTIN REPRESENTING: EXIDE Technologies JOSE WS -- WATER SAMPLES Jord INITIA LS Muell RECEIVED BY : (Signature) ECEIVED BY : (Signature) (Signature SIGNATURE: DATE SAMPLER RECEIVED BY G = GRAB CHAIN OF CUSTODY RECORD à exide. com 0.3 Aster of the Hall 10.3 P.O. Box 250 Frisco, TX 75034 :phone 972-335-2121 Hd csimile 972-377-270 Secondary TDS-TSS FC = FLOW WEIGHTED COMPOSITE (96 PARTS) ..... ANALYSES REQUESTED 3.2001 1:45 NATURE OF INDUSTRY: TYIME N S TIME ADDRESS: 7471 FIATS Street Smelting Stretting Stretting Industry REPRESENTATIVE(S). B 17/14 King@CXide.Com G 0-23-17 BATE DATE OUTFALL: King 2 DATE SAMPL E TYPE Φ υ \*\* USE WASTE WATER REPORT FORMAT 0 REPRESENTING E-MAIL RESULTS TO: B7114 an. 0 PRESENTING å M 10:30 10:30 TIME (S) Raw Grab Samples \*\* TC = TIME COMPOSITE (96PARTS) RELINQUISHED BY : (Signature) 10/23/17 10/23/17 Ocenedo INDUSTRY: EXIDE Technologies DATE (S) JYYU HED BY : (Sig 7100612 FIELD INFORMATION: RELINQUISHED F0102317-02 FD102317-01 SAMPLE No. / IDENTIFICAT ION g 200 8

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227





Friday, November 03, 2017

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

#### Re: Project Name: Raw Grab Samples

Oxidor received 2 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
17100739-001	FD102717-01	Liquid	10/27/2017 10:00	Total Dissolved Solids, Total Suspended Solids
17100739-002	FD102717-02	Liquid	10/27/2017 10:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

Customor Sample ID:		0747 04						
Customer Sample ID.	FD10	2/1/-01						
Oxidor Sample ID:	17100	739-001			Matrix: L	_iquid		
Sample Received:	10/27	/2017		Sam	ple Collected: 1	0/27/2017 1	0:00	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	20.0	25	144	<b>0</b> mg/L	10/31/17 15:17	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	2.	<b>2</b> mg/L	10/30/17 10:25	SM-2540-D	K.E.L.	J-5





# **Analytical Report**

Customer Sample ID: Oxidor Sample ID: Sample Received:	<b>FD102</b> 17100 10/27/	2 <b>717-02</b> 739-002 2017		Sam	Matrix: L ple Collected: 1	iquid 0/27/2017 <sup>-</sup>	10:00	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 11/02/17 at	09:35							
Arsenic	0.003	0.005	0.003	mg/L	11/02/17 17:04	200.8	S.M.	J-5
Barium	0.003	0.005	0.047	mg/L	11/02/17 17:04	200.8	S.M.	
Cadmium	0.0005	0.001	ND	mg/L	11/02/17 17:04	200.8	S.M.	
Chromium	0.003	0.005	0.017	mg/L	11/02/17 17:04	200.8	S.M.	
Copper	0.0025	0.005	0.0068	mg/L	11/02/17 17:04	200.8	S.M.	
Iron	0.25	0.5	ND	mg/L	11/02/17 17:04	200.8	S.M.	
Lead	0.003	0.005	0.008	mg/L	11/02/17 17:04	200.8	S.M.	
Manganese	0.001	0.002	ND	mg/L	11/02/17 17:04	200.8	S.M.	
Nickel	0.003	0.005	ND	mg/L	11/02/17 17:04	200.8	S.M.	
Selenium	0.0025	0.005	0.0154	mg/L	11/02/17 17:04	200.8	S.M.	
Silver	0.001	0.001	ND	mg/L	11/02/17 17:04	200.8	S.M.	
Zinc	0.003	0.005	0.006	mg/L	11/02/17 17:04	200.8	S.M.	
Digested by method 245.1 on 10/30/17 at	08:51			-				
Mercury	0.0001	0.0002	ND	mg/L	10/30/17 15:54	245.1	A.W.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD102717-01	17100739-001	Total Dissolved Solids	SM-2540-C	TDS01524_L
		Total Suspended Solids	SM-2540-D	TSS00136_L
FD102717-02	17100739-002	Mercury	245.1	MERC_09939_L
		Zinc	200.8	META_09670_L
		Silver	200.8	META_09670_L
		Selenium	200.8	META_09670_L
		Nickel	200.8	META_09670_L
		Manganese	200.8	META_09670_L
		Lead	200.8	META_09670_L
		Iron	200.8	META_09670_L
		Copper	200.8	META_09670_L
		Chromium	200.8	META_09670_L
		Cadmium	200.8	META_09670_L
		Barium	200.8	META_09670_L
		Arsenic	200.8	META_09670_L





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID TDS_01524_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	1010 mg/L		1000 mg/L	101%	90-110%			
LCSD	Total Dissolved Solids	1000 mg/L		1000 mg/L	100%	90-110%	1.0%	0-5%	
Replicate	Total Dissolved Solids	2140 mg/L	2230 mg/L	0			4.1%	0-5%	
QCBatc	hID TSS00136_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	438 mg/L		500 mg/L	88%	85-115%			
LCSD	Total Suspended Solids	468 mg/L		500 mg/L	94%	85-115%	6.6%	0-15%	
Replicate	Total Suspended Solids	1.2 mg/L	1.2 mg/L	-			0.0%	0-15%	
QCBatc	hID MERC_09939_L								
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0093 mg/L		0.01 mg/L	93%	85-115%			
LCSD	Mercury	0.0092 mg/L		0.01 mg/L	92%	85-115%	1.4%	0-25%	
MS	Mercury	0.0094 mg/L	ND	0.01 mg/L	94%	80-120%			
MSD	Mercury	0.0096 mg/L	ND	0.01 mg/L	96%	80-120%	1.7%	0-25%	
QCBatc	hID META_09670_L								
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.470 mg/L		0.5 mg/L	94%	85-115%			
	Barium	0.482 mg/L		0.5 mg/L	96%	85-115%			
	Cadmium	0.4891 mg/L		0.5 mg/L	98%	85-115%			
	Chromium	0.488 mg/L		0.5 mg/L	98%	85-115%			
	Copper	0.4981 mg/L		0.5 mg/L	100%	85-115%			
	Iron	48.3 mg/L		50.5 mg/L	96%	85-115%			
	Lead	0.470 mg/L		0.5 mg/L	94%	85-115%			
	Manganese	0.460 mg/L		0.5 mg/L	92%	85-115%			
	Nickel	0.468 mg/L		0.5 mg/L	94%	85-115%			
	Selenium	0.4540 mg/L		0.5 mg/L	91%	85-115%			
	Silver	0.500 mg/L		0.5 mg/L	100%	85-115%			
	Zinc	0.502 mg/L		0.5 mg/L	100%	85-115%			
LCSD	Arsenic	0.465 mg/L		0.5 mg/L	93%	85-115%	1.1%	0-20%	
	Barium	0.489 mg/L		0.5 mg/L	98%	85-115%	1.4%	0-20%	
		5		•					





### **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flage
QCBatch	ID META_09670_L								
	Cadmium	0.4890 mg/L		0.5 mg/L	98%	85-115%	0.0%	0-20%	
	Chromium	0.484 mg/L		0.5 mg/L	97%	85-115%	0.8%	0-20%	
	Copper	0.4889 mg/L		0.5 mg/L	98%	85-115%	1.9%	0-20%	
	Iron	49.5 mg/L		50.5 mg/L	98%	85-115%	2.5%	0-20%	
	Lead	0.472 mg/L		0.5 mg/L	94%	85-115%	0.4%	0-20%	
	Manganese	0.480 mg/L		0.5 mg/L	96%	85-115%	4.3%	0-20%	
	Nickel	0.475 mg/L		0.5 mg/L	95%	85-115%	1.5%	0-20%	
	Selenium	0.4569 mg/L		0.5 mg/L	91%	85-115%	0.6%	0-20%	
	Silver	0.498 mg/L		0.5 mg/L	100%	85-115%	0.4%	0-20%	
	Zinc	0.488 mg/L		0.5 mg/L	98%	85-115%	2.8%	0-20%	
MS	Arsenic	0.464 mg/L	0.002 mg/L	0.5 mg/L	92%	80-120%			
	Barium	0.578 mg/L	0.081 mg/L	0.5 mg/L	99%	80-120%			
	Cadmium	0.4886 mg/L	ND	0.5 mg/L	98%	80-120%			
	Chromium	0.487 mg/L	0.003 mg/L	0.5 mg/L	97%	80-120%			
	Copper	0.4797 mg/L	ND	0.5 mg/L	96%	80-120%			
	Iron	49.3 mg/L	0.037 mg/L	50.5 mg/L	98%	80-120%			
	Lead	0.476 mg/L	ND	0.5 mg/L	95%	80-120%			
	Manganese	0.471 mg/L	ND	0.5 mg/L	94%	80-120%			
	Nickel	0.466 mg/L	ND	0.5 mg/L	93%	80-120%			
	Selenium	0.4687 mg/L	0.004 mg/L	0.5 mg/L	93%	80-120%			
	Silver	0.501 mg/L	ND	0.5 mg/L	100%	80-120%			
	Zinc	0.491 mg/L	0.002 mg/L	0.5 mg/L	98%	80-120%			
MSD	Arsenic	0.473 mg/L	0.002 mg/L	0.5 mg/L	94%	80-120%	1.9%	0-20%	
	Barium	0.552 mg/L	0.081 mg/L	0.5 mg/L	94%	80-120%	4.6%	0-20%	
	Cadmium	0.4879 mg/L	ND	0.5 mg/L	98%	80-120%	0.1%	0-20%	
	Chromium	0.495 mg/L	0.003 mg/L	0.5 mg/L	98%	80-120%	1.6%	0-20%	
	Copper	0.4931 mg/L	ND	0.5 mg/L	99%	80-120%	2.8%	0-20%	
	Iron	50.5 mg/L	0.037 mg/L	50.5 mg/L	100%	80-120%	2.4%	0-20%	
	Lead	0.469 mg/L	ND	0.5 mg/L	94%	80-120%	1.5%	0-20%	
	Manganese	0.478 mg/L	ND	0.5 mg/L	96%	80-120%	1.5%	0-20%	
	Nickel	0.473 mg/L	ND	0.5 mg/L	95%	80-120%	1.5%	0-20%	
	Selenium	0.4824 mg/L	0.004 mg/L	0.5 mg/L	96%	80-120%	2.9%	0-20%	
	Silver	0.497 mg/L	ND	0.5 mg/L	99%	80-120%	0.8%	0-20%	
	Zinc	0.507 mg/L	0.002 mg/L	0.5 mg/L	101%	80-120%	3.2%	0-20%	





### **Case Narrative**

Draiget Names Daw Creh Complete

Project Name.	Raw Grab Samples
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

#### Project Name: Raw Grab Samples

Receipt temp: <b>4.1 °C or</b> Receipt method: <b>Custome</b> Custody seal intact: <b>Yes</b>	n Ice er Courier		All sample	es / labels reco	eived intact: <b>Yes</b>
Customer Sample ID: FD1027	17-01		Collected By:	Jose Aceved	0
Oxidor Sample ID: 1710073	9-001		Collector Affiliation:	Exide Techno	ologies
Collected: 10/27/17	10:00		Matrix:	Liquid	
<u>Bottle Type</u> 1000 mL Plastic	<u>Count</u> 1	<u>Collection Method</u> Grab	Parts / Interval	Indicated <u>Preservation</u> Temp	<u>рН</u> -
Customer Sample ID: FD1027	17-02		Collected By:	Jose Aceved	0
Oxidor Sample ID: 1710073	9-002		Collector Affiliation:	Exide Techno	ologies
Collected: 10/27/17	10:00		Matrix:	Liquid	
<u>Bottle Type</u> 250 mL Plastic	<u>Count</u> 1	<u>Collection Method</u> Grab	<u>Parts / Interval</u>	Indicated <u>Preservation</u> HNO3	<u>рН</u> <2

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.




Order ID: 17100739 Date: 11/3/2017 Page 9 of 9

## Documentation

## PROJECT DESCRIPTION: Raw Grab Samples

This first street 1.11 First Street P.O. Box 250 Frieto, 1X 79034 Telephone 972-337-3121 FaceInalie 972-377-2707 FaceInalie 972-972-2707 FaceInalie 972-972-2727 FaceInalie 972-977-2707 FaceInalie 972-977-7707 FaceInalie 972-9777-7707 F

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L	NDUSTRY: EXID	E Technologies		OUTFALL	ws	O'NLL AGAMMAN	Toch Tech	nologies		
		1		NATURE O	F INDUSTRY: Secondary	REPRESENTING	and anno		T	
	ADDRESS: 7471 F	Texas 75034		Smelting		SIGNATURE:	Jou	acceeds		
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						AT'A		PRESERVATION / REMARKS	T LINE	
	SAMPLE No. /	DATE (S)	TIMP (S)	SAMPL	ANALYSES REQUESTED PH	TIME	ALTINI	/ CONTAINERS ALL SAMPLES COOL ≤ 6° C	T'S T'S	
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00	Epilerina Provide	11/27/01	10:00 am.	,	45cd LUMM, NI O			H Ning/250ml. Plastic	4.7	
82	F0102717-02	11/2/01	10-00 am.	Ð	A SECTOR SUNCTION 4.4					
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	PURPHERED INFORMA	VTION: Raw Grab S	amptes							ı
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		E-MAIL		TAN						٢
		USE WAS	STE WATER REPORT FU	I VINIT I		SCETVED RV · (Signal	ure)	REPRESENTING DATE	TIME	
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	HEMNOUR	HEDRY : (Signature)	REPRESENTING	DATT 101	INME B	ECEIVED BY : (Signa	(are)			
	(N/a	brunk ).	024	ee o	AL SWIT	ECEIVED BY : (Signa	ture)	REPRESENTING DATE	TIME 11	
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		OMPOSITE (96PARI	IS) FC = FLOW WELG	HIED COM	POSITE (96 PARTS) G =	GRAB WS-WAT	ER SAMPLES	. hol-to	ц.	2
	** TC = 11000 L	OMINON ALISONINO		0				,		



May 8, 2018

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034

#### **RE: 2018 FIRST QUARTER FRENCH DRAIN OPERATIONAL REPORT**

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the first quarter 2018. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITES

Activities completed during the first quarter 2018 included the following:



130208605

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the first quarter 2018 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the first quarter 2018.

A more detailed description of the results of data collection activities and inspections is included in section 3.0 below.

## 3.0 OBSERVATIONS AND RESULTS

## 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#history/s20160331/e20170401/myear).

## 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the first quarter 2018. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in fourth quarter 2017 with some wells having a slight decrease in water level while others had a slight increase.

## 3.3 Floodwall Seepage

At the time of the wall inspection on February 15, 2018, sealant previously used to fill cracks appeared to be in deteriorating condition. Exide was notified and repairs were made as needed. No seepage from the floodwall was observed. The floodwall waterstops and joint fillers were generally in good condition and no major cracks were observed with the exception as noted above.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on February 15, 2018. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the first quarter 2018. Sampling of the French Drain was conducted on February 8, 2018. All analytical results from these samples are included in Table 3 and Attachment A.

## 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the first quarter 2018 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

Golder Associates Inc.

Emily White

Emily P. White Staff Geological Engineer

L Boot

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

EPW/AMF/FMB

Anne Faith - Bord

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer





Jan-18			Feb-18	Mar-18				
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
5,110		0.56	15,910		7.18	16,390		2.25
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Monday, January 01, 2018	NR	0.00	Thursday, February 1, 2018	50	0.00	Thursday, March 1, 2018	5,410	0.02
Tuesday, January 02, 2018	NR <sup>1</sup>	0.00	Friday, February 2, 2018	50	0.00	Friday, March 2, 2018	2,790	0.00
Wednesday, January 03, 2018	NR <sup>1</sup>	0.00	Saturday, February 3, 2018	NR	0.00	Saturday, March 3, 2018	580	0.00
Thursday, January 04, 2018	NR <sup>1</sup>	0.00	Sunday, February 4, 2018	NR	0.00	Sunday, March 4, 2018	NR	0.03
Friday, January 05, 2018	1,600	0.00	Monday, February 5, 2018	120	0.00	Monday, March 5, 2018	840	0.00
Saturday, January 06, 2018	NR	0.00	Tuesday, February 6, 2018	40	0.04	Tuesday, March 6, 2018	440	0.00
Sunday, January 07, 2018	NR	0.23	Wednesday, February 7, 2018	1,070	0.01	Wednesday, March 7, 2018	340	0.00
Monday, January 08, 2018	1,220	0.00	Thursday, February 8, 2018	260	0.00	Thursday, March 8, 2018	380	0.00
Tuesday, January 09, 2018	330	0.00	Friday, February 9, 2018	150	0.00	Friday, March 9, 2018	250	0.00
Wednesday, January 10, 2018	150	0.00	Saturday, February 10, 2018	NR	0.03	Saturday, March 10, 2018	NR	0.00
Thursday, January 11, 2018	150	0.00	Sunday, February 11, 2018	NR	0.00	Sunday, March 11, 2018	NR	0.00
Friday, January 12, 2018	NR <sup>1</sup>	0.00	Monday, February 12, 2018	NR <sup>1</sup>	0.00	Monday, March 12, 2018	610	0.00
Saturday, January 13, 2018	NR	0.00	Tuesday, February 13, 2018	350	0.00	Tuesday, March 13, 2018	157	0.00
Sunday, January 14, 2018	NR	0.00	Wednesday, February 14, 2018	60	0.00	Wednesday, March 14, 2018	133	0.00
Monday, January 15, 2018	30	0.00	Thursday, February 15, 2018	70	0.00	Thursday, March 15, 2018	170	0.00
Tuesday, January 16, 2018	NR <sup>1</sup>	0.00	Friday, February 16, 2018	110	0.00	Friday, March 16, 2018	140	0.00
Wednesday, January 17, 2018	NR <sup>1</sup>	0.00	Saturday, February 17, 2018	NR	0.36	Saturday, March 17, 2018	NR	0.15
Thursday, January 18, 2018	NR <sup>1</sup>	0.00	Sunday, February 18, 2018	NR	0.00	Sunday, March 18, 2018	NR	0.00
Friday, January 19, 2018	500	0.00	Monday, February 19, 2018	NR	0.00	Monday, March 19, 2018	670	0.00
Saturday, January 20, 2018	NR	0.00	Tuesday, February 20, 2018	880	2.31	Tuesday, March 20, 2018	150	0.00
Sunday, January 21, 2018	NR	0.23	Wednesday, February 21, 2018	3,550	1.55	Wednesday, March 21, 2018	130	NL
Monday, January 22, 2018	240	0.00	Thursday, February 22, 2018	1,990	0.32	Thursday, March 22, 2018	63	NL
Tuesday, January 23, 2018	60	0.00	Friday, February 23, 2018	3,000	0.55	Friday, March 23, 2018	77	0.00
Wednesday, January 24, 2018	150	0.00	Saturday, February 24, 2018	NR	0.61	Saturday, March 24, 2018	250	0.00
Thursday, January 25, 2018	60	0.00	Sunday, February 25, 2018	NR	0.00	Sunday, March 25, 2018	NR	0.00
Friday, January 26, 2018	60	0.01	Monday, February 26, 2018	2,770	0.00	Monday, March 26, 2018	280	0.00
Saturday, January 27, 2018	NR	0.09	Tuesday, February 27, 2018	660	0.05	Tuesday, March 27, 2018	NR <sup>2</sup>	1.55
Sunday, January 28, 2018	NR	0.00	Wednesday, February 28, 2018	730	1.35	Wednesday, March 28, 2018	1,810	0.50
Monday, January 29, 2018	400	0.00				Thursday, March 29, 2018	720	0.00
Tuesday, January 30, 2018	100	0.00				Friday, March 30, 2018	NR	0.00
Wednesday, January 31, 2018	60	0.00				Saturday, March 31, 2018	NR	0.00

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20160630/e20170701/myear Daily flow volumes provided by Exide. NR - Not Recorded.

NL - Not Listed.

<sup>1</sup>Temperatures below freezing, pump did not function.

<sup>2</sup> Pump did not function.

Prepared by: JME 03/03/18, BCW 04/18/18 Checked by: EPW 04/19/2018 Reviewed by: AMF/FMB 04/29/2018

		Ste	wart Creek Elevations				
Surv	www.Doint		Measurement	El	evation		
Suiv	ey Font		Date	(	ft msl)		
Transect 1							
Top of North Bank			3/7/2016		628.74		
Creek Centerline			3/7/2016		627.79		
Toe of South Bank			3/7/2016		624.27		
Top of South Bank			3/7/2016		634.09		
Transect 2			· ·				
Top of North Bank			3/7/2016		627.97		
Toe of North Bank			3/7/2016		623.57		
Top of South Bank			3/7/2016		630.52		
Transect 3			0,7,2020				
Top of North Bank			3/7/2016		628.20		
Toe of North Bank			3/7/2016		622.70		
Toe of South Bank			3/7/2016		622.88 678.18		
	TOC	Scroon	5/7/2010	Donth to	Groundwator		
Well ID	Elevation	Interval	Measurement	Groundwater	Elevation		
	(ft msl)	(ft bas)	Date	(ft btoc)	(ft msl)		
MW-26	631.93	5-15	3/11/2013	9,98	621.95		
(Groundwater)			4/5/2013	9.52	622.41		
			4/29/2013	9.21	622.72		
			1/21/2014	5.80	626.13		
			//29/2014	5.79	626.14		
			9/23/2014 6/12/2015	0.9 5 32	626.61		
			9/8/2015	5.72	626.21		
			12/17/2015	5.32	626.61		
			2/29/2016	5.41	626.52		
			6/1/2016	5.47	626.46		
			9/8/2016	5.51	626.42		
			12/2/2016	5.05 E 91	626.28		
			5/2/2017	6.21	625.12		
			8/28/2017	5.56	626.37		
			11/27/2017	5.71	626.22		
			2/15/2018	5.75	626.18		
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43		
(Groundwater)			4/5/2013	6.96	626.55		
			1/21/2013	6.62	626.89		
			7/29/2014	6.57	626.94		
			9/23/2014	6.04	627.47		
			6/12/2015	5.21	628.30		
			9/8/2015	6.35	627.16		
			2/29/2016	5.07	627.04		
			6/1/2016	5.69	627.82		
			9/8/2016	5.67	627.84		
			12/2/2016	6.25	627.26		
			3/2/2017	6.51	627.00		
			5/4/2017 8/28/2017	5.80	627.71 627.61		
			11/27/2017	6.77	626.74		
			2/15/2018	6.77	626.74		
MW-31	636.71	8-23	5/13/2013	10.58	626.13		
(Groundwater)			1/21/2014	10.87	625.84		
			7/29/2014	10.81	625.90		
			9/23/2014	9.61	625.39		
			9/8/2015	10.53	626.18		
			12/17/2015	9.42	627.29		
			2/29/2016	9.78	626.93		
			6/1/2016	9.82	626.89		
			9/8/2016	9.90	626.81		
			12/2/2016 3/2/2017	10.21	020.5U 674 49		
			5/4/2017	10.58	626.13		
			8/28/2017	9.99	626.72		
			11/27/2017	10.82	625.89		
			2/15/2018	10.90	625.81		

Well ID	TOC	Screen	Measurement	Depth to	Groundwater
wen 1D	(ft mol)	(ft has)	Data	(ft htee)	(ft mol)
MM 22	(11 1151)		1/21/2014		
(Perched)	030.90	2.5-5	7/2014	4.10	626.80
(reicheu)			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.63	627.13
			3/2/2010	3.70	627.30
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
			11/27/2017	3.54	627.42
			2/15/2018	3.21	627.75
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			//29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			2/29/2015	1.21	631 52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
			5/4/2017	0.91	631.68
			8/28/2017	0.86	631.73
			2/15/2018	0.85	631.74
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			9/8/2016	2.04	630.79
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
			11/27/2017	3.62	629.21
	622 EE	255	2/15/2018	3./1	629.12 DBX
(Perched)	032.55	2.5-5	7/2014	DRY	DRY
(i ciclica)			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			0/1/2010	3.99	028.30 628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
			5/4/2017	4.58	627.97
			8/28/2017	4.16	628.39
			11/27/2017	3.98	628.57
MAL AC	620.09	10.20	2/15/2018	3.81	628.74
MW-40 (Groundwater)	030.98	10-20	1/21/2014 7/20/2014	5.21	625.77
(Groundwater)			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			3/2/2010	4.90 5.00	625.02
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
			11/27/2017	5.41	625.57
			2/15/2018	5.81	625.17
Notes:					

Prepared by: JME 02/21/2018 Checked by: EPW 04/18/2018 Reviewed by: AMF/FMB 04/29/2018

 1. bgs - below ground surface.
 Prepared by: JME 02,

 2. msl - above mean sea level.
 Checked by: EPW 04,

 3. btoc - below top of casing.
 Reviewed by: AMF/FMB 04,

 4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

## Table 3 French Drain Water Analytical Data

	Samı FD020	<b>ole ID</b> 918-01	Samp ED020	<b>ble ID</b> 918-02
	Labora	tory ID	Labora	tory ID
	180202	259-001	180202	59-002
	Date C	ollected	Date Co	ollected
	2/8/201	8 09:30	2/8/201	8 09:30
Metals				
Parameter:	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	0.004	mg/L
Barium	NA	mg/L	0.033	mg/L
Cadmium	NA	mg/L	ND	mg/L
Chromium	NA	mg/L	0.014	mg/L
Copper	NA	mg/L	0.0056	mg/L
Iron	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.014	mg/L
Manganese	NA	mg/L	ND	mg/L
Nickel	NA	mg/L	ND	mg/L
Selenium	NA	mg/L	0.0100	mg/L
Silver	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	0.012	mg/L
Mercury	NA	mg/L	ND	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Total Suspended Solids	9.9	mg/L	NA	mg/L
Total Dissolved Solids	880	mg/L	NA	mg/L

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

3) mg/L - milligrams per liter

Prepared by: JME 02/21/2018 Checked by: EPW 04/18/2018 Reviewed by: AMF 04/25/2018



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET S





Order ID: 18020259 Date: 2/16/2018 Page 1 of 16

Friday, February 16, 2018

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

Sample	Sample ID	Matrix	Collected	Analysis
18020259-001	FD020918-01	Liquid	2/8/2018 09:30	Total Dissolved Solids, Total Suspended Solids
18020259-002	FD020918-02	Liquid	2/8/2018 09:30	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18020259-003	SO020918-01	Liquid	2/8/2018 09:20	Total Dissolved Solids, Total Suspended Solids
18020259-004	SO020918-02	Liquid	2/8/2018 09:20	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18020259-005	L020918-01	Liquid	2/8/2018 09:10	Total Dissolved Solids, Total Suspended Solids
18020259-006	L020918-02	Liquid	2/8/2018 09:10	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





Order ID: 18020259 Date: 2/16/2018 Page 2 of 16

Exide Technologies Billy King

# **Analytical Report**

Project Name: Raw Grab Samples Quarterly

Customer Sample ID: Oxidor Sample ID: Sample Received:	FD020 18020 2/9/20	<b>0918-01</b> 259-001 18		Sam	Matrix: L	_iquid 2/8/2018 09:	30	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								Ū
Total Dissolved Solids	20.0	50	88	0 mg/L	02/12/18 16:15	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	9.	9 mg/L	02/13/18 09:40	SM-2540-D	K.E.L.	





Order ID: 18020259 Date: 2/16/2018 Page 3 of 16

Exide Technologies Billy King

## **Analytical Report**

Project Name: Raw Grab Samples Quarterly

Customer Sample ID:	FD020	918-02						
Oxidor Sample ID:	180202	259-002			Matrix: L	iquid		
Sample Received:	2/9/20	18		Sam	ple Collected: 2	/8/2018 09	:30	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 02/13/18 at	10:39							
Arsenic	0.003	0.005	0.004	mg/L	02/14/18 11:11	200.8	S.M.	J-5
Barium	0.003	0.005	0.033	mg/L	02/14/18 11:11	200.8	S.M.	
Cadmium	0.0005	0.001	ND	mg/L	02/14/18 11:11	200.8	S.M.	
Chromium	0.003	0.005	0.014	mg/L	02/14/18 11:11	200.8	S.M.	
Copper	0.0025	0.005	0.0056	mg/L	02/14/18 11:11	200.8	S.M.	
Iron	0.25	0.5	ND	mg/L	02/14/18 11:11	200.8	S.M.	
Lead	0.003	0.005	0.014	mg/L	02/14/18 11:11	200.8	S.M.	
Manganese	0.001	0.002	ND	mg/L	02/14/18 11:11	200.8	S.M.	
Nickel	0.003	0.005	ND	mg/L	02/14/18 11:11	200.8	S.M.	
Selenium	0.0025	0.005	0.0100	mg/L	02/14/18 11:11	200.8	S.M.	
Silver	0.001	0.001	ND	mg/L	02/14/18 11:11	200.8	S.M.	
Zinc	0.003	0.005	0.012	mg/L	02/14/18 11:11	200.8	S.M.	
Digested by method 245.1 on 02/13/18 at 0	08:30							
Mercury	0.0001	0.0002	ND	mg/L	02/13/18 14:56	245.1	A.W.	

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227





Order ID: 18020259 Date: 2/16/2018 Page 8 of 16

Exide Technologies Billy King

### Sample Cross Reference

### Project Name: Raw Grab Samples Quarterly

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD020918-01	18020259-001	Total Dissolved Solids	SM-2540-C	TDS 01625 L
		Total Suspended Solids	SM-2540-D	TSS_02837_L
FD020918-02	18020259-002	Mercury	245.1	MERC 10840 L
		Arsenic	200.8	META 12671 L
		Selenium	200.8	META_12671 L
		Silver	200.8	META 12671 L
		Zinc	200.8	META 12671 L
		Manganese	200.8	META 12671 L
		Lead	200.8	META 12671 L
		Iron	200.8	META 12671 L
		Copper	200.8	META 12671 L
		Chromium	200.8	META 12671 L
		Nickel	200.8	META 12671 L
		Barium	200.8	META 12671 L
		Cadmium	200.8	META 12671 L
SO020918-01	18020259-003	Total Dissolved Solids	SM-2540-C	TDS 01825 I
		Total Suspended Solids	SM-2540-D	TSS 02837 L
30020918-02	18020259-004	Mercury	245.1	MERC 10840 L
		Copper	200.8	META 12771 L
		Silver	200.8	META 12771 I
		Selenium	200.8	META 12771 L
		Nickel	200.8	META 12771 L
		Manganese	200.8	META 12771 I
		Iron	200.8	META 12771 J
		Chromium	200.8	META 12771 I
		Zinc	200.8	META 12771 L
		Cadmium	200.8	META 12771 L
		Barium	200.8	META 12771 I
		Arsenic	200.8	META 12771 I
		Lead	200.8	META 12771 L
.020918-01	18020259-005	Total Dissolved Solids	SM-2540-C	TDS 01625 L
		Total Suspended Solids	SM-2540-D	TSS 02837 I
020918-02	18020259-006	Mercury	245 1	MERC 10840 1
		Lead	200.8	META 10771
		Arsenic	200.8	META 12771 L
		Barium	200.8	META 12771 L
		Cadmium	200.8	META 12771 L
		Chromium	200.8	META 12771 L
		Iron	200.8	META 12771_L
		Manganese	200.8	META 12771 I
		Nickel	200.8	META 12771
		Selenium	200.8	META 12771
		Silver	200.8	META 12771
		Zinc	200.8	META 12771 I
		Copper	200.8	META 12771 L





Order ID: 18020259 Date: 2/16/2018 Page 9 of 16

Exide Technologies Billy King

## **QC Summary**

#### Project Name: Raw Grab Samples Quarterly

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatc	hID TDS_01625_L					Promisium			
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	955 mg/L		1000 mg/L	96%	90-110%		***	
LCSD	Total Dissolved Solids	955 mg/L		1000 mg/L	96%	90-110%	0.0%	0-5%	
Replicate	Total Dissolved Solids	1040 mg/L	1060 mg/L				1.9%	0-5%	
QCBatc	hID TDS01825_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	950 mg/L		1000 mg/L	95%	90-110%			
LCSD	Total Dissolved Solids	970 mg/L	****	1000 mg/L	97%	90-110%	2.1%	0-5%	
Replicate	Total Dissolved Solids	940 mg/L	940 mg/L				0.0%	0-5%	n Weissenn Breeze
QCBatcl	hID TSS02837_L							u.	
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	462 mg/L		500 ma/L	92%	85-115%			
LCSD	Total Suspended Solids	453 mg/L		500 ma/L	91%	85-115%	2.0%	0-15%	
Replicate	Total Suspended Solids	218 mg/L	226 mg/L	5			3.6%	0-15%	
QCBatcl	DID MERC_10840_L	Ŭ	ÿ				0.070	0 10/0	
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0100 mg/L		0.01 mg/l	100%	85-115%			
LCSD	Mercury	0.0100 mg/L		0.01 ma/L	100%	85-115%	0.0%	0-25%	
MS	Mercury	0.0098 mg/L	ND	0.01 ma/L	98%	80-120%	01070	0 20 / 0	
MSD	Mercury	0.0100 mg/L	ND	0.01 ma/L	100%	80-120%	2.0%	0-25%	
QCBatch	DID META 12671 L			ÿ					
Blank	Arsenic	ND ma/L		and the second					
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.096 mg/L		0.1 mg/L	96%	85-115%			
	Barium	0.100 mg/L		0.1 mg/L	100%	85-115%			
	Cadmium	0.0968 mg/L		0.1 mg/L	97%	85-115%			
	Chromium	0.095 mg/L		0.1 mg/L	95%	85-115%			
	Copper	0.0963 mg/L		0.1 mg/L	96%	85-115%			
	Iron	9.74 mg/L		10.1 mg/L	96%	85-115%			
	Lead	0.093 mg/L		0.1 mg/L	93%	85-115%			

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Exide Technologies Billy King

#### **QC Summary**

#### Project Name: Raw Grab Samples Quarterly

QC Type	Parameter	Result	Reference Value	Spike Conc	Rec	Rec Limits	RPD	RPD Limits	Flags
QCBatch	ID META	_12671_L							
	Manganese	0.092 mg/l	_	0.1 mg/L	92%	85-115%			
	Nickel	0.095 mg/l	<u> </u>	0.1 mg/L	95%	85-115%			
	Selenium	0.1008 mg/L	-	0.1 mg/L	101%	85-115%			
	Silver	0.101 mg/l		0.1 mg/L	101%	85-115%			
	Zinc	0.094 mg/l	_	0.1 mg/L	94%	85-115%			
LCSD	Arsenic	0.099 mg/l	-	0.1 mg/L	99%	85-115%	3.1%	0-20%	
	Barium	0.103 mg/l	-	0.1 mg/L	103%	85-115%	3.0%	0-20%	
	Cadmium	0.0966 mg/l	<u>.</u>	0.1 mg/L	97%	85-115%	0.2%	0-20%	
	Chromium	0.096 mg/L		0.1 mg/L	96%	85-115%	1.0%	0-20%	
	Copper	0.0985 mg/l		0.1 mg/L	99%	85-115%	2.3%	0-20%	
	Iron	9.86 mg/L	_	10.1 mg/L	98%	85-115%	1.2%	0-20%	
	Lead	0.093 mg/L	-	0.1 mg/L	93%	85-115%	0.0%	0-20%	
	Manganese	0.092 mg/L	<u>.</u>	0.1 mg/L	92%	85-115%	0.0%	0-20%	
	Nickel	0.095 mg/L		0.1 mg/L	95%	85-115%	0.0%	0-20%	
	Selenium	0.0983 mg/L		0.1 mg/L	98%	85-115%	2.5%	0-20%	
	Silver	0.100 mg/L		0.1 mg/L	100%	85-115%	1.0%	0-20%	
	Zinc	0.098 mg/L	-	0.1 mg/L	98%	85-115%	4.2%	0-20%	
MS	Arsenic	0.493 mg/L	0.004 mg/L	0.5 mg/L	98%	80-120%			and the second
	Barium	0.542 mg/L	. 0.033 mg/L	0.5 mg/L	102%	80-120%			
	Cadmium	0.4790 mg/L	. ND	0.5 mg/L	96%	80-120%			
	Chromium	0.481 mg/L	0.014 mg/L	0.5 mg/L	93%	80-120%			
	Copper	0.4967 mg/L	0.0056 mg/L	0.5 mg/L	98%	80-120%			
	Iron	48.3 mg/L	ND	50.5 mg/L	96%	80-120%			
	Lead	0.474 mg/L	0.014 mg/L	0.5 mg/L	92%	80-120%			
	Manganese	0.453 mg/L	. ND	0.5 mg/L	91%	80-120%			
	Nickel	0.466 mg/L	. ND	0.5 mg/L	93%	80-120%			
	Selenium	0.5256 mg/L	0.0100 mg/L	0.5 mg/L	103%	80-120%			
	Silver	0.491 mg/L	. ND	0.5 mg/L	98%	80-120%			
	Zinc	0.482 mg/L	0.012 mg/L	0.5 mg/L	94%	80-120%			
MSD	Arsenic	0.514 mg/L	0.004 mg/L	0.5 mg/L	102%	80-120%	4.2%	0-20%	
	Barium	0.544 mg/L	0.033 mg/L	0.5 mg/L	102%	80-120%	0.4%	0-20%	
	Cadmium	0.4797 mg/L	ND	0.5 mg/L	96%	80-120%	0.1%	0-20%	
	Chromium	0.496 mg/L	0.014 mg/L	0.5 mg/L	96%	80-120%	3.1%	0-20%	
	Copper	0.5090 mg/L	0.0056 mg/L	0.5 mg/L	101%	80-120%	2.4%	0-20%	
	Iron	49.3 mg/L	ND	50.5 mg/L	98%	80-120%	2.0%	0-20%	
	Lead	0.477 mg/L	0.014 mg/L	0.5 mg/L	93%	80-120%	0.6%	0-20%	
	Manganese	0.461 mg/L	ND	0.5 mg/L	92%	80-120%	1.8%	0-20%	
	Nickel	0.475 mg/L	ND	0.5 mg/L	95%	80-120%	1.9%	0-20%	
	Selenium	0.5185 mg/L	0.0100 mg/L	0.5 mg/L	102%	80-120%	1.4%	0-20%	
	Silver	0.492 mg/L	ND	0.5 mg/L	98%	80-120%	0.2%	0-20%	
	Zinc	0.494 mg/L	0.012 mg/L	0.5 mg/L	96%	80-120%	2.5%	0-20%	

QCBatchID META\_12771\_L





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Exide Technologies Billy King

### **QC Summary**

Project Name: Raw Grab Samples Quarterly

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID META_12771_L								
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.451 mg/L		0.5 mg/L	90%	85-115%			
	Barium	0.466 mg/L		0.5 mg/L	93%	85-115%			
	Cadmium	0.4766 mg/L		0.5 mg/L	95%	85-115%			
	Chromium	0.486 mg/L		0.5 mg/L	97%	85-115%			
	Copper	0.4588 mg/L		0.5 mg/L	92%	85-115%			
	Iron	51.4 mg/L		50.5 mg/L	102%	85-115%			
	Lead	0.466 mg/L		0.5 mg/L	93%	85-115%			
	Manganese	0.479 mg/L		0.5 mg/L	96%	85-115%			
	Nickel	0.479 mg/L		0.5 mg/L	96%	85-115%			
	Selenium	0.4927 mg/L		0.5 mg/L	99%	85-115%			
	Silver	0.484 mg/L		0.5 mg/L	97%	85-115%			
	Zinc	0.472 mg/L		0.5 mg/L	94%	85-115%			
LCSD	Arsenic	0.473 mg/L		0.5 mg/L	95%	85-115%	4.8%	0-20%	
	Barium	0.474 mg/L		0.5 mg/L	95%	85-115%	1.7%	0-20%	
	Cadmium	0.4853 mg/L		0.5 mg/L	97%	85-115%	1.8%	0-20%	
	Chromium	0.494 mg/L		0.5 mg/L	99%	85-115%	1.6%	0-20%	
	Copper	0.4762 mg/L		0.5 mg/L	95%	85-115%	3.7%	0-20%	
	Iron	52.9 mg/L		50.5 mg/L	105%	85-115%	2.9%	0-20%	
	Lead	0.473 mg/L		0.5 mg/L	95%	85-115%	1.5%	0-20%	
	Manganese	0.492 mg/L		0.5 mg/L	98%	85-115%	2.7%	0-20%	
	Nickel	0.483 mg/L		0.5 mg/L	97%	85-115%	0.8%	0-20%	
	Selenium	0.4398 mg/L		0.5 mg/L	88%	85-115%	11.3%	0-20%	
	Silver	0.496 mg/L		0.5 mg/L	99%	85-115%	2.4%	0-20%	
	Zinc	0.496 mg/L		0.5 mg/L	99%	85-115%	5.0%	0-20%	
MS	Arsenic	0.466 mg/L	ND	0.5 mg/L	93%	80-120%			
	Barium	0.472 mg/L	0.007 mg/L	0.5 mg/L	93%	80-120%			
	Cadmium	0.4762 mg/L	ND	0.5 mg/L	95%	80-120%			
	Chromium	0.616 mg/L	0.151 mg/L	0.5 mg/L	93%	80-120%			
	Copper	0.4890 mg/L	0.036 mg/L	0.5 mg/L	91%	80-120%			
	Iron	50.5 mg/L	0.19 mg/L	50.5 mg/L	100%	80-120%			
	Lead	0.477 mg/L	0.003 mg/L	0.5 mg/L	95%	80-120%			

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Exide Technologies Billy King

### **QC Summary**

### Project Name: Raw Grab Samples Quarterly

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_12771_L								
	Manganese	0.471 mg/L	0.007 mg/L	0.5 mg/L	93%	80-120%			
	Nickel	0.483 mg/L	0.027 mg/L	0.5 mg/L	91%	80-120%			
	Selenium	0.4775 mg/L	0.001 mg/L	0.5 mg/L	95%	80-120%			
	Silver	0.482 mg/L	0.003 mg/L	0.5 mg/L	96%	80-120%			
	Zinc	0.491 mg/L	0.030 mg/L	0.5 mg/L	92%	80-120%			
MSD	Arsenic	0.476 mg/L	ND	0.5 mg/L	95%	80-120%	2.1%	0-20%	
	Barium	0.483 mg/L	0.007 mg/L	0.5 mg/L	95%	80-120%	2.3%	0-20%	
	Cadmium	0.4768 mg/L	ND	0.5 mg/L	95%	80-120%	0.1%	0-20%	
	Chromium	0.622 mg/L	0.151 mg/L	0.5 mg/L	94%	80-120%	1.0%	0-20%	
	Copper	0.4985 mg/L	0.036 mg/L	0.5 mg/L	93%	80-120%	1.9%	0-20%	
	Iron	50.3 mg/L	0.19 mg/L	50.5 mg/L	99%	80-120%	0.4%	0-20%	
	Lead	0.485 mg/L	0.003 mg/L	0.5 mg/L	96%	80-120%	1.7%	0-20%	
	Manganese	0.477 mg/L	0.007 mg/L	0.5 mg/L	94%	80-120%	1.3%	0-20%	
	Nickel	0.492 mg/L	0.027 mg/L	0.5 mg/L	93%	80-120%	1.8%	0-20%	
	Selenium	0.4974 mg/L	0.001 mg/L	0.5 mg/L	99%	80-120%	4.1%	0-20%	
	Silver	0.482 mg/L	0.003 mg/L	0.5 mg/L	96%	80-120%	0.0%	0-20%	
	Zinc	0.505 mg/L	0.030 mg/L	0.5 mg/L	95%	80-120%	2.8%	0-20%	





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Exide Technologies Billy King

#### **Case Narrative**

#### Project Name: Raw Grab Samples Quarterly

J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





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#### Exide Technologies Billy King

## **Sample Preservation Verification**

### Project Name: Raw Grab Samples Quarterly

Receipt temp: 1.6 °C	on Ice					
Receipt method: Custo	mer Courier					
Custody seal intact: Yes			All sample	es / labels rec	eived in	tact: Yes
Customer Sample ID: FD02	0918-01		Collected By:	Greg Hender	son	
Oxidor Sample ID: 18020	259-001		Collector Affiliation:	Exide Techn	ologies	
Collected: 02/08	/18 09:30		Matrix:	Liquid		
B (1) T				Indicated		
	Count	Collection Method	Parts / Interval	<b>Preservation</b>	рH	
1000 mL Plastic	1	Grab		Temp	-	
Customer Sample ID: FD02	0918-02		Collected By:	Greg Hender	son	
Oxidor Sample ID: 18020	259-002		Collector Affiliation:	Exide Techno	ologies	
Collected: 02/08/	18 09:30		Matrix:	Liquid		
D /// T				Indicated		
	Count	Collection Method	Parts / Interval	Preservation	pH	
250 mL Plastic	1	Grab		HNO3	<2	
Customer Sample ID: SO02	0918-01		Collected By:	Greg Henders	son	
Oxidor Sample ID: 18020	259-003		Collector Affiliation:	Exide Techno	ologies	
Collected: 02/08/	18 09:20		Matrix:	Liquid	-	
				Indicated		
	Count	Collection Method	Parts / Interval	Preservation	<mark>рН</mark>	
1000 ML Plastic	1	Grab		Temp	-	
Customer Sample ID: SO020	0918-02		Collected By:	Greg Henders	son	
Oxidor Sample ID: 18020	259-004		Collector Affiliation:	Exide Techno	ologies	
Collected: 02/08/	18 09:20		Matrix:	Liquid		
D-44- T				Indicated		
250 ml Diastia	Count	Collection Method	Parts / Interval	Preservation	рH	
200 ML Plastic	1	Grab		HNO3	<2	
Customer Sample ID: L0209	18-01		Collected By:	Greg Henders	son	
Oxidor Sample ID: 18020	259-005		Collector Affiliation:	Exide Techno	logies	
Collected: 02/08/	18 09:10		Matrix:	Liquid	•	
D.W. T				Indicated		
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	рH	
TUUU ML Plastic	1	Grab		Temp	-	





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Exide Technologies Billy King

## **Sample Preservation Verification**

Project Name: Raw Grab Samples Quarterly

Customer Sample ID:	L020918-02		Collected By:	Greg Henders	son	
Oxidor Sample ID:	18020259-006		Collector Affiliation:	Exide Techno	ologies	
Collected:	02/08/18 09:10		Matrix:	Liquid		
Bottle Type	Count	Collection Method	Parts / Interval	Indicated Preservation	рH	
250 mL Plast	ic 1	Grab		HNO3	<2	

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





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#### Documentation

PROJECT DESCRIPTION: Raw Grab Samples Quarterly



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July 10, 2018

Brad Weaver Exide Technologies 7471 5<sup>th</sup> Street Frisco, Texas 75034



130208605

#### **RE: 2018 SECOND QUARTER FRENCH DRAIN OPERATIONAL REPORT**

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the second quarter 2018. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

## 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously provided to TCEQ.

## 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITES

Activities completed during the second quarter 2018 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46.
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the second quarter 2018 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the second quarter 2018.

A more detailed description of the results of data collection activities and inspections is included in section 3.0 below.

## 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#history/s20171231/e20180701/mcustom).

## 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the second quarter 2018. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in first quarter 2018 with some wells having a slight decrease in water level while others had a slight increase.

## 3.3 Floodwall Seepage

At the time of the wall inspection on May 9, 2018, erosion was noted in isolated areas along the wall. Exide was notified and repairs were made as needed. No seepage from the floodwall was observed. The floodwall waterstops and joint fillers were generally in good condition and no major cracks were observed.

## 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on May 9, 2018. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the second quarter 2018. Sampling of the French Drain was conducted on May 15, 2018. All analytical results from these samples are included in Table 3 and Attachment A.

## 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the second quarter 2018 described above, the FDS appears to be operating as designed and preventing discharges to Stewart Creek.

## 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

**Golder Associates Inc.** 

Enily White

Emily P. White Staff Geological Engineer

Root

Frederick M. Booth, P.G. (Louisiana) Principal and Program Leader

Attachments or Enclosures:

Table 1: French Drain Daily Flow Volumes

Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

EPW/AMF/FMB

Anne Fauth - Boyd

Anne M. Faeth-Boyd, P.G. Associate and Senior Engineer





Apr-18			May-18			Jun-18			
Total Flow (gal) Pr		Total Precip (in)	Total Flow (gal) Total (in)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	
7,630		1.27	6,300		1.98	4,070			
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	
Sunday, April 01, 2018	NR	0.00	Tuesday, May 01, 2018	150	0.00	Friday, June 01, 2018	100	0.00	
Monday, April 02, 2018	1,340	0.00	Wednesday, May 02, 2018	140	0.00	Saturday, June 02, 2018	NR	0.00	
Tuesday, April 03, 2018	380	0.00	Thursday, May 03, 2018	550	0.69	Sunday, June 03, 2018	NR	0.00	
Wednesday, April 04, 2018	150	0.00	Friday, May 04, 2018	920	0.65	Monday, June 04, 2018	260	0.30	
Thursday, April 05, 2018	170	0.00	Saturday, May 05, 2018	NR	0.00	Tuesday, June 05, 2018	150	0.00	
Friday, April 06, 2018	280	0.13	Sunday, May 06, 2018	NR	0.00	Wednesday, June 06, 2018	1,120	0.65	
Saturday, April 07, 2018	NR	0.00	Monday, May 07, 2018	670	0.00	Thursday, June 07, 2018	400	0.01	
Sunday, April 08, 2018	NR	0.00	Tuesday, May 08, 2018	230	0.00	Friday, June 08, 2018	280	0.00	
Monday, April 09, 2018	530	0.00	Wednesday, May 09, 2018	270	0.00	Saturday, June 09, 2018	NR	0.00	
Tuesday, April 10, 2018	150	0.00	Thursday, May 10, 2018	180	0.00	Sunday, June 10, 2018	NR	0.00	
Wednesday, April 11, 2018	190	0.00	Friday, May 11, 2018	220	0.00	Monday, June 11, 2018	460	0.00	
Thursday, April 12, 2018	170	0.00	Saturday, May 12, 2018	NR	0.00	Tuesday, June 12, 2018	140	0.00	
Friday, April 13, 2018	150	0.33	Sunday, May 13, 2018	NR	0.00	Wednesday, June 13, 2018	70	0.00	
Saturday, April 14, 2018	NR	0.00	Monday, May 14, 2018	400	0.00	Thursday, June 14, 2018	80	0.00	
Sunday, April 15, 2018	NR	0.00	Tuesday, May 15, 2018	170	0.00	Friday, June 15, 2018	240	0.00	
Monday, April 16, 2018	800	0.00	Wednesday, May 16, 2018	NR <sup>1</sup>	0.00	Saturday, June 16, 2018	NR	0.00	
Tuesday, April 17, 2018	290	0.00	Thursday, May 17, 2018	280	0.00	Sunday, June 17, 2018	NR	0.00	
Wednesday, April 18, 2018	290	0.00	Friday, May 18, 2018	220	0.04	Monday, June 18, 2018	70	0.00	
Thursday, April 19, 2018	60	0.00	Saturday, May 19, 2018	NR	0.00	Tuesday, June 19, 2018	70	0.03	
Friday, April 20, 2018	150	0.00	Sunday, May 20, 2018	NR	0.46	Wednesday, June 20, 2018	70	0.06	
Saturday, April 21, 2018	NR	0.39	Monday, May 21, 2018	550	0.00	Thursday, June 21, 2018	70	0.00	
Sunday, April 22, 2018	NR	0.00	Tuesday, May 22, 2018	200	0.00	Friday, June 22, 2018	170	0.00	
Monday, April 23, 2018	670	0.00	Wednesday, May 23, 2018	170	0.00	Saturday, June 23, 2018	NR	0.00	
Tuesday, April 24, 2018	160	0.00	Thursday, May 24, 2018	80	0.00	Sunday, June 24, 2018	NR	0.00	
Wednesday, April 25, 2018	150	0.41	Friday, May 25, 2018	110	0.12	Monday, June 25, 2018	60	0.07	
Thursday, April 26, 2018	750	0.01	Saturday, May 26, 2018	NR	0.02	Tuesday, June 26, 2018	60	0.00	
Friday, April 27, 2018	270	0.00	Sunday, May 27, 2018	NR	0.00	Wednesday, June 27, 2018	60	0.00	
Saturday, April 28, 2018	NR	0.00	Monday, May 28, 2018	NR	0.00	Thursday, June 28, 2018	50	0.00	
Sunday, April 29, 2018	NR	0.00	Tuesday, May 29, 2018	540	0.00	Friday, June 29, 2018	90	0.00	
Monday, April 30, 2018	530	0.00	Wednesday, May 30, 2018	130	0.00	Saturday, June 30, 2018	NR	0.00	
			Thursday, May 31, 2018	120	0.00				

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20171231/e20180701/mcustom Daily flow volumes provided by Exide.

NR - Not Recorded.

 $^{1}\,\mathrm{Did}$  not pump due to hose movement for on-Site activities.

Prepared by: BCW 07/03/18 Checked by: EPW 07/05/18 Reviewed by: AMF 07/07/18

Stewart Creek Elevations							
Surv	ey Point		Measurement Date	El (	evation ft msl)		
Transect 1				•			
Top of North Bank			3/7/2016		628.74		
Toe of North Bank			3/7/2016		624.79		
Creek Centerline			3/7/2016		622.79		
Toe of South Bank			3/7/2016		624.27		
Top of South Bank			3/7/2016		634.09		
Transect 2							
Top of North Bank			3/7/2016		627.97		
Toe of North Bank			3/7/2016		623.57		
Toe of South Bank			3/7/2016		624.04		
Top of South Bank			3/7/2016		630.52		
Transect 3							
Top of North Bank			3/7/2016		628.20		
Toe of North Bank			3/7/2016		622.70		
Toe of South Bank			3/7/2016	622.88			
Top of South Bank			3/7/2016		628.18		
	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation		
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msi)		
MW-26	631.93	5-15	3/11/2013	9.98	621.95		
(Groundwater)			4/5/2013	9.52	622.41		
			4/29/2013	9.21	622.72		
			1/21/2014	5.80	626.13		
			//29/2014	5.79	626.14		
			9/23/2014	8.9	623.03		
			0/12/2015	5.32	626.61		
			9/8/2015	5.72	626.21		
					<b>D/D D</b>		
			2/20/2016	5.3Z E 41	626 52		
			2/29/2016	5.41	626.52 626.46		
			2/29/2016 6/1/2016	5.32 5.41 5.47	626.52 626.46		
			2/29/2016 6/1/2016 9/8/2016	5.52 5.41 5.47 5.51 5.65	626.52 626.46 626.42 626.28		
			2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017	5.52 5.41 5.47 5.51 5.65 5.81	626.52 626.46 626.42 626.28 626.12		
			2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017 5/4/2017	5.52 5.41 5.47 5.51 5.65 5.81 6.21	626.52 626.46 626.42 626.28 626.12 625.72		
			2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017 5/4/2017 8/28/2017	5.52 5.41 5.47 5.51 5.65 5.81 6.21 5.56	626.52 626.46 626.42 626.28 626.12 625.72 626.37		
			2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017 5/4/2017 8/28/2017 11/27/2017	5.52 5.41 5.47 5.51 5.65 5.81 6.21 5.56 5.71	626.52 626.46 626.42 626.28 626.12 625.72 626.37 626.22		
			2/29/2016 6/1/2016 9/8/2016 12/2/2016 3/2/2017 5/4/2017 8/28/2017	5.52 5.41 5.47 5.51 5.65 5.81 6.21 5.56	626.52 626.46 626.42 626.28 626.12 625.72 626.37		

5/9/2018

5.65

626.28

	TOC	Screen	Measurement	Depth to	Groundwater
well ID	Elevation	Interval		Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43
(Groundwater)			4/5/2013	6.96	626.55
			4/29/2013	6.56	626.95
			1/21/2014	6.62	626.89
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
			9/8/2015	6.35	627.16
			12/17/2015	5.67	627.84
			2/29/2016	5.79	627.72
			6/1/2016	5.69	627.82
			9/8/2016	5.67	627.84
			12/2/2016	6.25	627.26
			3/2/2017	6.51	627.00
			5/4/2017	5.80	627.71
			8/28/2017	5.90	627.61
			11/27/2017	6.77	626.74
			2/15/2018	6.77	626.74
			5/9/2018	5.95	627.56
MW-31	636.71	8-23	5/13/2013	10.58	626.13
(Groundwater)			1/21/2014	10.87	625.84
			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
			9/8/2015	10.53	626.18
			12/17/2015	9.42	627.29
			2/29/2016	9.78	626.93
			6/1/2016	9.82	626.89
			9/8/2016	9.90	626.81
			12/2/2016	10.21	626.50
			3/2/2017	12.23	624.48
			5/4/2017	10.58	626.13
			8/28/2017	9.99	626.72
			11/27/2017	10.82	625.89
			2/15/2018	10.90	625.81
			5/9/2018	10.19	626.52

	тос	Screen	Manauramant	Depth to	Groundwater
Well ID	Elevation	Interval	measurement	Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
(Perched)			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
			11/27/2017	3.54	627.42
			2/15/2018	3.21	627.75
			5/9/2018	3.30	627.66
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
			5/4/2017	0.91	631.68
			8/28/2017	0.86	631.73
			11/27/2017	0.85	631.74
			2/15/2018	0.81	631.78
			5/9/2018	0.80	631.79
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
			11/27/2017	3.62	629.21
			2/15/2018	3.71	629.12
			5/9/2018	3.57	629.26

MW-35

(Perched)

Well ID

тос Elevation

(ft msl)

632.55

		-		
1	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft bgs)	Date	(ft btoc)	(ft msl)
	2.5-5	1/21/2014	DRY	DRY
		7/29/2014	DRY	DRY
		9/23/2014	DRY	DRY
		6/12/2015	4.97	627.58
		9/8/2015	DRY	DRY
		12/17/2015	4.10	628.45
		2/29/2016	3.86	628.69
		6/1/2016	3.99	628.56
		9/8/2016	4.13	628.42
		12/2/2016	3.85	628.70
		3/2/2017	3.94	628.61
		5/4/2017	4 58	627 97

			0/1/2010	5.55	020.50
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
			5/4/2017	4.58	627.97
			8/28/2017	4.16	628.39
			11/27/2017	3.98	628.57
			2/15/2018	3.81	628.74
			5/9/2018	3.92	628.63
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
			11/27/2017	5.41	625.57
			2/15/2018	5.81	625.17
			5/9/2018	4.24	626.74
Notes:					

1. bgs - below ground surface.

Prepared by: BCW 06/06/18

2. msl - above mean sea level.

3. btoc - below top of casing.

Checked by: EPW 07/05/2018

Reviewed by: AMF 07/07/2018

4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

## Table 3 French Drain Water Analytical Data

	Samı ED051	<b>ble ID</b> 518-01	Samp ED051	<b>ble ID</b> 518-02		
	Labora	tory ID				
	180503	889-001	180503			
	Date C		Date C			
	5/15/20	18 11·00	5/15/20	18 11·00		
Metals	5,15,20	10 11.00	5,15,20	10 11.00		
Parameter:	Result	Units	Result	Units		
Antimony	NA	mg/L	NA	mg/L		
Arsenic	NA	mg/L	0.003 J-5	mg/L		
Barium	NA	mg/L	0.059	mg/L		
Cadmium	NA	mg/L	ND	mg/L		
Chromium	NA	mg/L	0.016	mg/L		
Copper	NA	mg/L	0.0074	mg/L		
Iron	NA	mg/L	ND	mg/L		
Lead	NA	mg/L	0.017	mg/L		
Manganese	NA	mg/L	ND	mg/L		
Nickel	NA	mg/L	ND	mg/L		
Selenium	NA	mg/L	0.0153	mg/L		
Silver	NA	mg/L	ND	mg/L		
Zinc	NA	mg/L	0.004 J-5	mg/L		
Mercury	NA	mg/L	ND	mg/L		
General Chemistry	General Chemistry					
Parameter:	Result	Units	Result	Units		
Total Suspended Solids	1.0 J-5	mg/L	NA	mg/L		
Total Dissolved Solids	20.0	mg/L	NA	mg/L		

Notes:

1) NA - Not Analyzed

2) ND - Not Detected

3) mg/L - milligrams per liter

Prepared by: BCW 06/06/18 Checked by: EPW 07/05/18 Reviewed by: AMF 07/07/18







Order ID: 18050389 Date: 5/22/2018 Page 1 of 14

Tuesday, May 22, 2018

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

<u>Sample</u> 18050389-001	Sample ID FD051518-01	<u>Matrix</u>	Collected	Analysis
18050389-002	FD051518-02	Liquid	5/15/2018 11:00 5/15/2018 11:00	Total Dissolved Solids, Total Suspended Solids Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead
18050389-003 18050389-004	SO051518-01 SO051518-02	Liquid Liquid	5/15/2018 11:15 5/15/2018 11:15	Manganese, Mercury, Nickel, Selenium, Silver, Zinc Total Dissolved Solids, Total Suspended Solids
18050389-005 18050389-006	L051518-01 L051518-02	Liquid Liquid	5/15/2018 11:30 5/15/2018 11:30	Manganese, Mercury, Nickel, Selenium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc Total Dissolved Solids, Total Suspended Solids Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





Order ID: 18050389 Date: 5/22/2018 Page 2 of 14

Exide Technologies Billy King

## **Analytical Report**

# Project Name: Raw Grab Samples Quarterly

Customer Sample ID Oxidor Sample ID Sample Received	: <b>FD05</b> : 18050 : 5/16/2	FD051518-01 18050389-001 5/16/2018		Matrix: Liquid Sample Collected: 5/15/2018 11:00						
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flage		
General Chemistry							, maryor	i lags		
Total Dissolved Solids	20.0	500	180	0 mg/L	05/17/18 16:35	SM-2540-C	KEI			
Total Suspended Solids	1.0	5	2.	8 mg/L	05/17/18 09:45	SM-2540-D	K.E.L.	J-5		





Order ID: 18050389 Date: 5/22/2018 Page 3 of 14

Exide Technologies Billy King

# **Analytical Report**

Project Name: Raw Grab Samples Quarterly

Customer Sample ID:	FD051	518-02						
Oxidor Sample ID:	18050	389-002						
Sample Received:	5/16/2	018	Sample Collected: 5/15/2018 11.00					
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flage
Metals					-		, indijet	r iaga
Digested by method 200.8 on 05/16/18 at	11:41							
Arsenic	0.003	0.005	0.003	mg/L	05/17/18 10:52	200.8	SM	1.5
Barium	0.003	0.005	0.059	mg/L	05/17/18 10:52	200.8	S.M.	1-0
Cadmium	0.0005	0.001	ND	mg/L	05/17/18 10:52	200.8	S.M.	
Chromium	0.003	0.005	0.016	mg/L	05/17/18 10:52	200.8	S.M	
Copper	0.0025	0.005	0.0074	ma/L	05/17/18 10:52	200.8	S.M.	
Iron	0.25	0.5	ND	mg/L	05/17/18 10:52	200.8	S.M.	
Lead	0.003	0.005	0.017	mg/L	05/17/18 10:52	200.8	S.M.	
Manganese	0.001	0.002	ND	ma/L	05/17/18 10:52	200.8	S.M	
Nickel	0.003	0.005	ND	mg/L	05/17/18 10:52	200.8	S.M	
Selenium	0.0025	0.005	0.0153	ma/L	05/17/18 10:52	200.8	S.M.	
Silver	0.001	0.001	ND	ma/L	05/17/18 10:52	200.8	S.M	
Zinc	0.003	0.005	0.004	ma/l	05/17/18 10:52	200.0	S.IVI.	
Digested by method 245.1 on 05/17/18 at 0	8:41		0.001	ing, c	00/11/10 10:02	200.8	5.IVI.	J-5
Mercury	0.0001	0.0002	ND	mg/L	05/17/18 16:35	245.1	L.Z.	




Order ID: 18050389 Date: 5/22/2018 Page 8 of 14

Exide Technologies Billy King

# Sample Cross Reference

# Project Name: Raw Grab Samples Quarterly

Customer ID:	Lab ID:	Test	Method	QCBatchID:
-D051518-01 18050389-001		Total Dissolved Solids	SM-2540-C	TDS 05725 1
		Total Suspended Solids	SM-2540-D	TSS 010201
-D051518-02	18050389-002	Mercury	245.1	NEDC_0000_L
		Arsenic	200.8	
		Selenium	200.8	META_08572_L
		Silver	200.8	IVIE 1A_08572_L
		Zinc	200.8	META_08572_L
		Manganese	200.8	WETA_08572_L
		Lead	200.8	META_08572_L
		Iron	200.8	META_08572_L
		Copper	200.8	META_08572_L
		Chromium	200.8	META_08572_L
		Nickel	200.8	META_08572_L
		Barium	200.8	META_08572_L
		Cadmium	200.8	META_08572_L
SO051518-01	19050290 002		200.8	META_08572_L
0001010-01	10000009-000	Total Dissolved Solids	SM-2540-C	TDS05725_L
0051519 02	10050000 001	I otal Suspended Solids	SM-2540-D	TSS01038_L
0001010-02	18050389-004	Mercury	245.1	MERC 22240 L
		Copper	200.8	META 08572 L
		Silver	200.8	META 08572 L
		Selenium	200.8	META 08572 L
		Nickel	200.8	META 08572 L
		Manganese	200.8	META 08572 1
		Iron	200.8	META 08572 L
		Chromium	200.8	META 08572 L
		Zinc	200.8	META 08572 L
		Cadmium	200.8	META 08572_L
		Barium	200.8	META 08572_L
		Arsenic	200.8	META_00572_L
		Lead	200.8	META_00572_L
051518-01	18050389-005	Total Dissolved Solids	SM 254D C	TDD 0572_L
		Total Suspended Solids	SM 2540 D	TDS_05725_L
051518-02	18050389-006	Mercup	SIVI-2540-D	188_01038_L
	10000000000000	Lead	245.1	MERC_22540_L
		Amonio	200.8	META_08572_L
		Parium	200.8	META_08572_L
		Cadreium	200.8	META_08572_L
		Cadmium	200.8	META_08572_L
		Chromium	200.8	META_08572_L
		Iron	200.8	META_08572_L
		Manganese	200.8	META_08572_L
		NICKEI	200.8	META_08572_L
		Selenium	200.8	META_08572 L
		Silver	200.8	META_08572_L
		Zinc	200.8	META_08572 L
		Copper	200.8	META 08572 1

Oxidor Laboratories, LLC • 1825 E. Plano Parkway #160 • Plano, TX 75074 • Tel: (972) 424-6422 • NELAP# T104704227





Order ID: 18050389 Date: 5/22/2018 Page 9 of 14

Exide Technologies Billy King

# **QC Summary**

# Project Name: Raw Grab Samples Quarterly

QC Type	Parameter	Result	Reference Value	Spike Conc	Rec	Rec Limits	RPD	RPD Limits	Flags
QCBatch	DID TDS_05725 L								i lugo
Blank	Total Dissolved Solids	ND ma/l				· · · · · · · · · · · · · · · · · · ·			
LCS	Total Dissolved Solids	975 mg/L		1000 mg/l	0.99/	00.4400/			
LCSD	Total Dissolved Solids	990 ma/L		1000 mg/L	00%	90-110%	4 50/	0.50/	
Replicate	Total Dissolved Solids	865 mg/L	890 ma/L	1000 mg/L	5570	30-110%	1.0%	0-5%	
QCBatch	D TSS 01038 L						2.070	0-3%	
Blank	Total Suspended Solids	ND ma/l							
LCS	Total Suspended Solids	457 mg/L	99999999999999999999999999999999999999	500 mg/l	019/	05 4450/			
LCSD	Total Suspended Solids	472 mg/L		500 mg/L	91%	00-110%	2.00/	0.450/	
Replicate	Total Suspended Solids	208 mg/L	210 mg/l	500 mg/L	54 /0	00-115%	3.2%	0-15%	
QCBatch	ID MERC 22240 I	<u></u>					1.2%	0-15%	
Blank	Mercury	ND mg/l							
LCS	Mercury	0.0094 mg/L		0.01 mg/l	0.49/	05 4450/			
LCSD	Mercury	0.0087 mg/L		0.01 mg/L	94%	85-115%			
MS	Mercury	0.0094 mg/L	ND	0.01 mg/L	0/%	85-115%	8.1%	0-25%	
MSD	Mercury	0.0086 mg/l	ND	0.01 mg/L	94 %	80-120%	0.40/	0.050/	
QCBatch	ID MERC 22540 L	olocoo mg/L	110	0.01 mg/L	00 70	00-120%	9.4%	0-25%	
Blank	Mercury	ND mg/l							
LCS	Mercury	0.0096 mg/L		0.01 mg/l	069/	QE 11E0/			
LCSD	Mercury	0.0096 mg/L		0.01 mg/L	90%	95 115%	0.20/	0.05%	
MS	Mercury	0.0097 mg/L	ND	0.01 mg/L	97%	80.120%	0.3%	0-25%	
MSD	Mercury	0.0097 mg/L	ND	0.01 mg/L	97%	80-120%	0.09/	0.059/	
QCBatch	ID META 08572 I			o.or mgr	0170	00-12078	0.076	0-23%	
Blank	Arsenic	ND mg/l							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.494 mg/L		0.5 mg/L	99%	85-115%	and the second se		
	Barium	0.491 mg/L		0.5 mg/L	98%	85-115%			
	Cadmium	0.5038 mg/L		0.5 mg/L	101%	85-115%			
	Chromium	0.505 mg/L		0.5 mg/L	101%	85-115%			
	Copper	0.4922 mg/L		0.5 mg/L	98%	85-115%			
	Iron	51.4 mg/L		50.5 mg/L	102%	85-115%			

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# **QC Summary**

QC Type	Parameter	Result	Reference	Spike Come	D	Rec		RPD	
OCBatel		Result	Value	Spike Colic	Rec	Limits	RPD	Limits	Flag
GODALCI	Lead	0.404 mmm//							
	Manganeso	0.491 mg/L		0.5 mg/L	98%	85-115%			
	Nickel	0.479 mg/L		0.5 mg/L	96%	85-115%			
	Selenium	0.491 mg/L	- #	0.5 mg/L	98%	85-115%			
	Silver	0.4736 mg/L		0.5 mg/L	95%	85-115%			
	Zinc	0.509 mg/L		0.5 mg/L	102%	85-115%			
	Araonio	0.491 mg/L		0.5 mg/L	98%	85-115%			
LOOD	Rorium	0.496 mg/L		0.5 mg/L	99%	85-115%	0.4%	0-20%	
	Codmium	0.493 mg/L		0.5 mg/L	99%	85-115%	0.4%	0-20%	
	Claumium	0.5005 mg/L		0.5 mg/L	100%	85-115%	0.7%	0-20%	
	Chromium	0.507 mg/L		0.5 mg/L	101%	85-115%	0.4%	0-20%	
	Copper	0.4988 mg/L		0.5 mg/L	100%	85-115%	1.3%	0-20%	
	Iron	52.3 mg/L		50.5 mg/L	104%	85-115%	1.7%	0-20%	
	Lead	0.487 mg/L		0.5 mg/L	97%	85-115%	0.8%	0-20%	
	Manganese	0.482 mg/L		0.5 mg/L	96%	85-115%	0.6%	0-20%	
	Nickel	0.497 mg/L		0.5 mg/L	99%	85-115%	1.2%	0-20%	
	Selenium	0.5024 mg/L		0.5 mg/L	101%	85-115%	5.9%	0-20%	
	Silver	0.512 mg/L		0.5 mg/L	102%	85-115%	0.6%	0-20%	
	Zinc	0.495 mg/L		0.5 mg/L	99%	85-115%	0.8%	0-20%	
MS	Arsenic	0.510 mg/L	0.008 mg/L	0.5 mg/L	100%	80-120%	0.070	0 20 /0	
	Barium	0.517 mg/L	0.027 mg/L	0.5 mg/l	98%	80-120%			
	Cadmium	0.4953 mg/L	ND	0.5 mg/l	99%	80-120%			
	Chromium	0.511 ma/L	ND	0.5 mg/l	102%	80-120%			
	Copper	0.4985 ma/L	0.009 mg/l	0.5 mg/l	98%	80-120%			
	Iron	53.4 mg/l	0.05 mg/l	50.5 mg/l	106%	80 120%			
	Lead	0.513 mg/l	0.026 mg/l	0.5 mg/l	07%	80 120%			
	Manganese	0 499 mg/L	0.011 mg/L	0.5 mg/L	000/	00-120%			
	Nickel	0.498 mg/l	0.001 mg/L	0.5 mg/L	90 %	00-120%			
	Selenium	0.4980 mg/L	0.001 mg/L	0.5 mg/L	99%	80-120%			
	Silver	0.490 mg/L	0.0029 mg/L	0.5 mg/L	99%	80-120%			
	Zinc	0.493 mg/L	ND	0.5 mg/L	100%	80-120%			
MSD	Arconio	0.491 mg/L	ND	0.5 mg/L	98%	80-120%			
MOD	Barium	0.501 mg/L	0.008 mg/L	0.5 mg/L	99%	80-120%	1.8%	0-20%	
	Cadreium	0.538 mg/L	0.027 mg/L	0.5 mg/L	102%	80-120%	4.0%	0-20%	
	Cadmium	0.4948 mg/L	ND	0.5 mg/L	99%	80-120%	0.1%	0-20%	
	Chromium	0.506 mg/L	ND	0.5 mg/L	101%	80-120%	1.0%	0-20%	
	Copper	0.4962 mg/L	0.009 mg/L	0.5 mg/L	97%	80-120%	0.5%	0-20%	
	iron	52.8 mg/L	0.05 mg/L	50.5 mg/L	105%	80-120%	1.1%	0-20%	
	Lead	0.514 mg/L	0.026 mg/L	0.5 mg/L	98%	80-120%	0.2%	0-20%	
	Manganese	0.497 mg/L	0.011 mg/L	0.5 mg/L	97%	80-120%	0.4%	0-20%	
	Nickel	0.498 mg/L	0.001 mg/L	0.5 mg/L	99%	80-120%	0.0%	0-20%	
	Selenium	0.4898 mg/L	0.0029 mg/L	0.5 mg/L	97%	80-120%	1.7%	0-20%	
	Silver	0.502 mg/L	ND	0.5 mg/L	100%	80-120%	0.6%	0-20%	
	Zinc	0.490 mg/L	ND	0.5 ma/L	98%	80-120%	0.2%	0_20%	





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#### **Case Narrative**

## Project Name: Raw Grab Samples Quarterly

J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ddd	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





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# **Sample Preservation Verification**

Receipt temp: 1.4 °C	C on Ice					
Receipt method: Cust	omer Courier					
Custody seal intact: Yes			All sample	es / labels rec	eived in	tact: Yes
Customer Sample ID: FD0	51518-01		Collected By:	Greg Hender	son	
Oxidor Sample ID: 1805	50389-001		Collector Affiliation:	Exide Techn	ologies	
Collected: 05/1	5/18 11:00		Matrix:	Liquid	<b>J</b>	
Rottle Tune	Count			Indicated		
1000 ml Plastic	Count	Collection Method	Parts / Interval	Preservation	pH	
	1	Grab		Temp	-	
Customer Sample ID: FD0	51518-02		Collected By:	Greg Hender	son	
Oxidor Sample ID: 1805	50389-002		Collector Affiliation:	Exide Techno	ologies	
Collected: 05/1	5/18 11:00		Matrix:	Liquid		
Pottle Tune	Count	0.0.0		Indicated		
250 ml Direttia	Count	Collection Method	Parts / Interval	Preservation	pH	
250 IIIL Plastic	1	Grab		HNO3	<2	
Customer Sample ID: SOO	51518-01		Collected By:	Greg Hender	son	
Oxidor Sample ID: 1805	0389-003		Collector Affiliation:	Exide Techno	ologies	
Collected: 05/1	5/18 11:15		Matrix:	Liquid		
				Indicated		
Bottle Type	Count	Collection Method	Parts / Interval	<b>Preservation</b>	рH	
1000 mL Plastic	1	Grab		Temp	-	
Customer Sample ID: SOO	51518-02		Collected By:	Greg Henders	son	
Oxidor Sample ID: 1805	0389-004		Collector Affiliation:	Exide Techno	ologies	
Collected: 05/18	5/18 11:15		Matrix:	Liquid	3	
				Indicated		
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	рH	
250 mL Plastic	1	Grab		HNO3	<2	
Customer Sample ID: L051	518-01		Collected By:	Grea Henders	son	
Oxidor Sample ID: 1805	0389-005		Collector Affiliation:	Exide Techno	lonies	
Collected: 05/15	5/18 11:30		Matrix:	Liquid	109100	
				Indicated		
Bottle Type	Count	Collection Method	Parts / Interval	Preservation	Hq	
1000 mL Plastic	1	Grab		Temp		





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Exide Technologies Billy King

# Sample Preservation Verification

Project Name: Raw Grab Samples Quarterly

Customer Sample ID: L051518 Oxidor Sample ID: 1805038 Collected: 05/15/18	3-02 39-006 3 11:30		Collected By: Collector Affiliation: Matrix:	Greg Hender Exide Techno Liquid	son Diogies	
Bottle Type 250 mL Plastic	<u>Count</u> 1	Collection Method Grab	Parts / Interval	Indicated Preservation HNO3	<u>рН</u> <2	

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





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#### Documentation

PROJECT DESCRIPTION: Raw Grab Samples Quarterly

INITIALS HOLDER TIME GH GH GH GH 1030 ΗÐ HĐ PRESERVATION/ REMARKS/CONTAINERS / ALL SAMPLES COOL 5 6° C 0 5/16/18 1.4°C HNo3//250ml/plastic HNo3//250ml/plastic None/1 liter None/1 liter None/1 liter HNo3//250ml/plastic REPRESENTING JCS6 REPRESENTING OKIDOR EXIDE Technologies Greg Henderson INIT 64 6H 5-15-18/11:00 Am 6 H 6.0 S-15-18/11:15 Am 64 GH 5-15-18/11:30 AM 6 H 5-15-18/11-00 Am 5-15-18/11-15 Am 5-15-18/11:30 Am 5 REPRESENTING: nuel SIGNATURE: DATE SAMPLER: A Pr CHAIN OF CUSTODY RECORD 6.0 11.0 11.0 13.4 13.4 Facaimile 972-377-270 Hd E-MAIL RESULTS TO BHly.king@exide.com USE WASTE WATER REPORT FORMAT G = GRAB As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn ANALYSES REQUESTED As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn Purs An TDS-TSS 14/18/0130 Am SST-SQT TDS-TSS. NATURE OF INDUSTRY: Secondary Smelting OUTFALL: Influent water FC=FLOW WEIGHTED COMPOSITE (96 PARTS) TIME SAMPLE TYPE \*\* 5-16-18 Grab Grab Grab Grab Grab Grab DATE 0 11:30 AM 11:30 Am 11:00 Am 11:15 AM Il:IS Am 11:00 AM REPRESENTING RESENTING JCS6 TIME (S) FIELD INFORMATION: Raw Grab Samples Quarterly , Eduardo Salazar 5-15-18 5-15-19 5-15-18 5-15-18 5-15-18 \*\* TC = TIME COMPOSITE (96 PARTS) DATE (S) 5-15-18 19050389 EXIDE Technologies ADDRESS: 7471 Fifth Street Frisco, Texas 75034 INDUSTRY REPRESENTATIVE (S): QUANTERLY BV: (Sig ISHED BY: (Sig SAMPLE No. /-FD051518-02 FD051518-01 SO051518-01 SO051518-02 L051518-01 L051518-02 INDUSTRY: Ble tulite 002 400 1500 8 900 200

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December 28, 2018

Project No. 130208605

**Brad Weaver** Exide Technologies 7471 Fifth Street Frisco, Texas 75034

### RE: 2018 THIRD QUARTER FRENCH DRAIN OPERATIONAL REPORT, EXIDE TECHNOLOGIES, INC., 7471 FIFTH STREET, FRISCO, TEXAS

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 Fifth Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the third quarter 2018. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

# 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously

provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the third quarter 2018 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the third quarter 2018 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

Golder was not able to measure and record water levels in nearby perched and groundwater monitoring wells MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-36 as wells were not accessible due to flooding at the time of the quarterly inspection.

A more detailed description of the results of data collection activities and inspections is included in section 3.0 below.

# 3.0 OBSERVATIONS AND RESULTS

# 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#history/s20171231/e20180701/mcustom).

# 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were not measured during the third quarter 2018 due to access limited by Site conditions as described above. Table 2 summarizes the groundwater depths and elevations from previous events and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1.

# 3.3 Floodwall Seepage

At the time of the wall inspection on September 24, 2018, standing water was present on the plant side of the flood wall. Seepage and cracks were observed along the flood wall. Water was also noted to be seeping from

Brad Weaver
Exide Technologies

beneath the footer of the wall and was discharging to Stewart Creek. Exide collected samples of this water and reported the release to TCEQ. Golder and Exide personnel walked the length of the wall and performed a detailed inspection. Notes were made as to where repairs were to be made once water receded. These repairs were subsequently made by Exide after water receded.

# 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on September 24, 2018. As such, no samples of white crystalline material were collected or analyzed.

# 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the third quarter 2018. Sampling of the French Drain was conducted on August 28, 2018. All analytical results from these samples are included in Table 3 and Attachment A.

# 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on Site conditions discussed above, Golder was unable to assess performance of the FDS during the inspection on September 24, 2018; however, members of Golder were on-Site for Site investigations in July and August 2018 and observed the FDS in good working condition. Discussions with and documentation from Exide personnel report no issues with the FDS and the system appears to be operating as designed and preventing major discharges to Stewart Creek.

# 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

**GOLDER ASSOCIATES INC.** 

Emily White

Emily P. White Staff Geological Engineer

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. *Associate and Senior Engineer* 

: L Boot

Frederick M. Booth, P.G. (Louisiana) *Principal and Program Leader* 

EPW/AMF/FMB

Attachments: Table 1: French Drain Daily Flow Volumes Table 2: Perched and Groundwater Monitoring Well Water Elevations

Table 3: French Drain Water Analytical Data

Figure 1: Stewart Creek Transects

Attachment A: French Drain Water Laboratory Analytical Results

# Table 1 French Drain Daily Flow Volumes

Jul-18			Aug-18			Sep-18		
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
1,800		0.38	11,660		3.60	6,340		11.93
Date	Daily Flow (gal)	Daily Precip (in)	Daily I Date Flow P (gal)		Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Sunday, July 01, 2018	NR	0.00	Wednesday, August 01, 2018	0 <sup>1</sup>	0.00	Saturday, September 01, 2018	NR	0.00
Monday, July 02, 2018	90	0.00	Thursday, August 02, 2018	50	0.00	Sunday, September 02, 2018	NR	0.00
Tuesday, July 03, 2018	60	0.00	Friday, August 03, 2018	50	0.00	Monday, September 03, 2018	NR	0.52
Wednesday, July 04, 2018	NR	0.00	Saturday, August 04, 2018	NR	0.00	Tuesday, September 04, 2018	810	0.00
Thursday, July 05, 2018	110	0.00	Sunday, August 05, 2018	NR	0.00	Wednesday, September 05, 2018	140	0.31
Friday, July 06, 2018	50	0.00	Monday, August 06, 2018	60	0.00	Thursday, September 06, 2018	340	0.61
Saturday, July 07, 2018	NR	0.00	Tuesday, August 07, 2018	40	0.00	Friday, September 07, 2018	450	0.72
Sunday, July 08, 2018	NR	0.00	Wednesday, August 08, 2018	01	0.00	Saturday, September 08, 2018	NR	1.41
Monday, July 09, 2018	90	0.30	Thursday, August 09, 2018	130	0.62	Sunday, September 09, 2018	NR	0.02
Tuesday, July 10, 2018	140	0.00	Friday, August 10, 2018	840	0.00	Monday, September 10, 2018	1,820	0.09
Wednesday, July 11, 2018	140	0.00	Saturday, August 11, 2018	NR	0.78	Tuesday, September 11, 2018	400	0.04
Thursday, July 12, 2018	70	0.04	Sunday, August 12, 2018	NR	0.05	Wednesday, September 12, 2018	260	0.01
Friday, July 13, 2018	0 <sup>2</sup>	0.00	Monday, August 13, 2018	1,620	1.52	Thursday, September 13, 2018	240	0.00
Saturday, July 14, 2018	NR	0.00	Tuesday, August 14, 2018	680	0.25	Friday, September 14, 2018	150	0.43
Sunday, July 15, 2018	NR	0.00	Wednesday, August 15, 2018	340	0.00	Saturday, September 15, 2018	NR	0.00
Monday, July 16, 2018	320	0.00	Thursday, August 16, 2018	260	0.00	Sunday, September 16, 2018	NR	0.00
Tuesday, July 17, 2018	70	0.00	Friday, August 17, 2018	160	0.00	Monday, September 17, 2018	920	0.00
Wednesday, July 18, 2018	70	0.00	Saturday, August 18, 2018	NR	0.38	Tuesday, September 18, 2018	150	0.00
Thursday, July 19, 2018	60	0.00	Sunday, August 19, 2018	NR	0.00	Wednesday, September 19, 2018	150	0.00
Friday, July 20, 2018	60	0.00	Monday, August 20, 2018	5,710	0.00	Thursday, September 20, 2018	160	0.03
Saturday, July 21, 2018	NR	0.00	Tuesday, August 21, 2018	290	0.00	Friday, September 21, 2018	350	3.98
Sunday, July 22, 2018	NR	0.00	Wednesday, August 22, 2018	220	0.00	Saturday, September 22, 2018	NR	3.02
Monday, July 23, 2018	160	0.00	Thursday, August 23, 2018	260	0.00	Sunday, September 23, 2018	NR	0.09
Tuesday, July 24, 2018	50	0.00	Friday, August 24, 2018	150	0.00	Monday, September 24, 2018	0 <sup>3</sup>	0.01
Wednesday, July 25, 2018	60	0.00	Saturday, August 25, 2018	NR	0.00	Tuesday, September 25, 2018	0 <sup>3</sup>	0.00
Thursday, July 26, 2018	0 <sup>1</sup>	0.00	Sunday, August 26, 2018	NR	0.00	Wednesday, September 26, 2018	0 <sup>3</sup>	0.19
Friday, July 27, 2018	01	0.00	Monday, August 27, 2018	340	0.00	Thursday, September 27, 2018	0 <sup>3</sup>	0.00
Saturday, July 28, 2018	NR	0.00	Tuesday, August 28, 2018	170	0.00	Friday, September 28, 2018	0 <sup>3</sup>	0.00
Sunday, July 29, 2018	NR	0.00	Wednesday, August 29, 2018	70	0.00	Saturday, September 29, 2018	NR	0.45
Monday, July 30, 2018	150	0.04	Thursday, August 30, 2018	80	0.00	Sunday, September 30, 2018	NR	0.00
Tuesday, July 31, 2018	50	0.00	Friday, August 31, 2018	140	0.00			

Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20171231/e20180701/mcustom

Daily flow volumes provided by Exide.

NR - Not Recorded.

<sup>1</sup> Not enough water to pump.

<sup>2</sup> Did not pump; line disconnected and moved for drilling activites at Site.

<sup>3</sup> Did not pump; water over top of french drain because of amount of rainfall at the Site.

Prepared by: SJD 10/05/2018 Checked by: EPW 10/25/2018 Reviewed by: AMF 12/14/2018

		Ste	wart Creek Elevat	ions		
Sun	www.Boint		Measurement	Ei	evation	
Survey i onite			Date	(	ft msl)	
Transect 1						
Top of North Bank			3/7/2016		628.74	
Toe of North Bank			3/7/2016		624.79	
Creek Centerline			3/7/2016		622.79	
Toe of South Bank			3/7/2016		624.27	
Top of South Bank			3/7/2016		634.09	
Transect 2						
Top of North Bank			3/7/2016		627.97	
Toe of North Bank			3/7/2016		623.57	
Toe of South Bank			3/7/2016		624.04	
Top of South Bank			3/7/2016		630.52	
Transect 3						
Top of North Bank			3/7/2016		628.20	
Toe of North Bank			3/7/2016		622.70	
Toe of South Bank			3/7/2016	622.88		
Top of South Bank			3/7/2016		628.18	
	тос	Screen	Maacuramant	Depth to	Groundwater	
Well ID	Elevation	Interval	Measurement	Groundwater	Elevation	
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)	
MW-26	631.93	5-15	3/11/2013	9.98	621.95	
(Groundwater)			4/5/2013	9.52	622.41	
, ,			4/29/2013	9.21	622.72	
			1/21/2014	5.80	626.13	
			7/29/2014	5.79	626.14	
			9/23/2014	8.9	623.03	
			6/12/2015	5.32	626.61	
			9/8/2015	5.72	626.21	
			12/17/2015	5.32	626.61	
			2/29/2016	5.41	626.52	
			6/1/2016	5.47	626.46	
			9/8/2016	5.51	626.42	
			12/2/2016	5.65	626.28	
			3/2/2017	5.81 626.12		
			5/4/2017	6.21 625.72		
			8/28/2017	5.56	626.37	
			11/27/2017	5.71	626.22	
	1		2/15/2019	E 7E	626.18	
			2/13/2010	5.75	020.10	
			5/9/2018	5.65	626.28	

	тос	Screen	Measurement	Depth to	Groundwater
Well ID	Elevation	Interval		Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43
(Groundwater)			4/5/2013	6.96	626.55
			4/29/2013	6.56	626.95
			1/21/2014	6.62	626.89
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
			9/8/2015	6.35	627.16
			12/17/2015	5.67	627.84
			2/29/2016	5.79	627.72
			6/1/2016	5.69	627.82
			9/8/2016	5.67	627.84
			12/2/2016	6.25	627.26
			3/2/2017	6.51	627.00
			5/4/2017	5.80	627.71
			8/28/2017	5.90	627.61
			11/27/2017	6.77	626.74
			2/15/2018	6.77	626.74
			5/9/2018	5.95	627.56
			9/24/2018	NA	NA
MW-31	636.71	8-23	5/13/2013	10.58	626.13
(Groundwater)			1/21/2014	10.87	625.84
			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
			9/8/2015	10.53	626.18
			12/17/2015	9.42	627.29
			2/29/2016	9.78	626.93
			6/1/2016	9.82	626.89
			9/8/2016	9.90	626.81
			12/2/2016	10.21	626.50
			3/2/2017	12.23	624.48
			5/4/2017	10.58	626.13
			8/28/2017	9.99	626.72
			11/27/2017	10.82	625.89
			2/15/2018	10.90	625.81
			5/9/2018	10.19	626.52
			9/24/2018	NA	NA

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	TOC	Screen	Measurement	Depth to	Groundwater
Well ID	Elevation	Interval		Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
(Perched)			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
			11/27/2017	3.54	627.42
			2/15/2018	3.21	627.75
			5/9/2018	3.30	627.66
			9/24/2018	NA	NA
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
			5/4/2017	0.91	631.68
			8/28/2017	0.86	631.73
			11/27/2017	0.85	631.74
			2/15/2018	0.81	631.78
			5/9/2018	0.80	631.79
			9/24/2018	NA	NA
MW-34	632.83	2.5-5	1/21/2014	4.31	628.52
(Perched)			7/29/2014	4.45	628.38
· /			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2,75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
			11/27/2017	3.62	629.21
			2/15/2018	3 71	629.12
			5/9/2018	3.57	629.26
			9/24/2010	NA NA	NA
			<i>5/27/2</i> 010	11/4	IN/A

Well ID	TOC Elevation	Screen Interval	Measurement	Depth to Groundwater	Groundwater Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
			5/4/2017	4.58	627.97
			8/28/2017	4.16	628.39
			11/27/2017	3.98	628.57
			2/15/2018	3.81	628.74
			5/9/2018	3.92	628.63
			9/24/2018	NA	NA
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
			11/27/2017	5.41	625.57
			2/15/2018	5.81	625.17
			5/9/2018	4.24	626.74
			9/24/2018	NA	NA

Notes:

1. bgs - below ground surface.

2. msl - above mean sea level.

3. btoc - below top of casing.

4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

5. NA - not accessible due to Site conditions.

Prepared by: SJD 10/05/2018 Checked by: EPW 10/25/2018 Reviewed by: AMF 12/14/2018

	Sam	ole ID	Samp	ole ID
	FD082818-01		FD082	818-02
	Laboratory ID		Labora	tory ID
	18080631-001		Data Collected	
	8/28/20	18 08:00	8/28/20	18 08:00
Metals				
Parameter:	Result	Units	Result	Units
Antimony	NA	mg/L	NA	mg/L
Arsenic	NA	mg/L	0.003 J-5	mg/L
Barium	NA	mg/L	0.061	mg/L
Cadmium	NA	mg/L	ND	mg/L
Chromium	NA	mg/L	0.020	mg/L
Copper	NA	mg/L	0.0118	mg/L
Iron	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.008	mg/L
Manganese	NA	mg/L	ND	mg/L
Nickel	NA	mg/L	ND	mg/L
Selenium	NA	mg/L	0.0150	mg/L
Silver	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	ND	mg/L
Mercury	NA	mg/L	ND	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Total Suspended Solids	1.5 J-5	mg/L	NA	mg/L
Total Dissolved Solids	1,080	mg/L	NA	mg/L

Notes:

Prepared by: SJD 09/19/2018 Checked by: EPW 10/25/2018 Reviewed by: AMF 12/14/2018

1) NA - Not Analyzed
 2) ND - Not Detected

3) mg/L - milligrams per liter

4) J-5 - the associated concentration is an estimated value between the sample detection limit and the adjusted method quantitation limit.



YYYY-MM-DD		2016-10-	31
DESIGNED		JWT	
PREPARED		JWT	
REVIEWED		BEF	
APPROVED		FMB	
	REV.		FIGURE
	0		1

13-02086





Order ID: 18080631 Date: 9/5/2018 Page 1 of 14

Wednesday, September 05, 2018

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

#### Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	<u>Collected</u>	Analysis
18080631-001	FD082818-01	Liquid	8/28/2018 08:00	Total Dissolved Solids, Total Suspended Solids
18080631-002	FD082818-02	Liquid	8/28/2018 08:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18080631-003	SO082818-01	Liquid	8/28/2018 08:20	Total Dissolved Solids, Total Suspended Solids
18080631-004	SO082818-02	Liquid	8/28/2018 08:20	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18080631-005	LO082818-01	Liquid	8/28/2018 08:35	Total Dissolved Solids, Total Suspended Solids
18080631-006	LO082818-02	Liquid	8/28/2018 08:35	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

- /S\_J -

Charles Brungardt President





# **Analytical Report**

Customer Sample ID:	FD082	2818-01						
Oxidor Sample ID:	18080	631-001			Matrix: L	iquid		
Sample Received:	8/28/2	2018		Sam	ple Collected: 8	8/28/2018 08	8:00	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	20.0	25	108	<b>0</b> mg/L	08/28/18 15:55	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	1.9	5 mg/L	08/30/18 11:00	SM-2540-D	K.E.L.	J-5





# **Analytical Report**

Customer Sample ID:	FD082	818-02						
Oxidor Sample ID:	18080	631-002			Matrix: L	iquid		
Sample Received:	8/28/2	018		Sam	ple Collected: 8	/28/2018 0	8:00	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 08/29/18 at	09:03							
Arsenic	0.003	0.005	0.003	mg/L	08/29/18 15:53	200.8	S.M.	J-5
Barium	0.003	0.005	0.061	mg/L	08/29/18 15:53	200.8	S.M.	
Cadmium	0.0005	0.001	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Chromium	0.003	0.005	0.020	mg/L	08/29/18 15:53	200.8	S.M.	
Copper	0.0025	0.005	0.0118	mg/L	08/29/18 15:53	200.8	S.M.	
Iron	0.25	0.5	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Lead	0.003	0.005	0.008	mg/L	08/29/18 15:53	200.8	S.M.	
Manganese	0.001	0.002	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Nickel	0.003	0.005	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Selenium	0.0025	0.005	0.0150	mg/L	08/29/18 15:53	200.8	S.M.	
Silver	0.001	0.001	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Zinc	0.003	0.005	ND	mg/L	08/29/18 15:53	200.8	S.M.	
Digested by method 245.1 on 08/29/18 at	08:56			-				
Mercury	0.0001	0.0002	ND	mg/L	08/29/18 15:12	245.1	L.Z.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD082818-01	18080631-001	Total Dissolved Solids	SM-2540-C	TDS09425_L
		Total Suspended Solids	SM-2540-D	TSS11238_L
FD082818-02	18080631-002	Mercury	245.1	MERC 07841 L
		Arsenic	200.8	META_02473_L
		Selenium	200.8	META_02473_L
		Silver	200.8	META_02473_L
		Zinc	200.8	META_02473_L
		Manganese	200.8	META_02473_L
		Lead	200.8	META_02473_L
		Iron	200.8	META_02473_L
		Copper	200.8	META_02473_L
		Chromium	200.8	META_02473_L
		Nickel	200.8	META_02473_L
		Barium	200.8	META_02473_L
		Cadmium	200.8	META_02473_L
SO082818-01	18080631-003	Total Dissolved Solids	SM-2540-C	TDS09525_L
		Total Suspended Solids	SM-2540-D	TSS11238_L
SO082818-02	18080631-004	Mercury	245.1	MERC_07841_L
		Copper	200.8	META_02473_L
		Silver	200.8	META_02473_L
		Selenium	200.8	META_02473_L
		Nickel	200.8	META_02473_L
		Manganese	200.8	META_02473_L
		Iron	200.8	META_02473_L
		Chromium	200.8	META_02473_L
		Zinc	200.8	META_02473_L
		Cadmium	200.8	META_02473_L
		Barium	200.8	META_02473_L
		Arsenic	200.8	META_02473_L
		Lead	200.8	META_02473_L
LO082818-01	18080631-005	Total Dissolved Solids	SM-2540-C	TDS09525_L
		Total Suspended Solids	SM-2540-D	TSS11238_L
LO082818-02	18080631-006	Mercury	245.1	MERC_07841_L
		Lead	200.8	META_02473_L
		Arsenic	200.8	META_02473_L
		Barium	200.8	META_02473_L
		Cadmium	200.8	META_02473_L
		Chromium	200.8	META_02473_L
		Iron	200.8	META_02473_L
		Manganese	200.8	META_02473_L
		Nickel	200.8	META_02473_L
		Selenium	200.8	META_02473_L
		Silver	200.8	META_02473_L
		Zinc	200.8	META_02473_L
		Copper	200.8	META_02473_L





# **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID TDS_09425	L							
Blank	Total Dissolved Solids	s ND mg/L							
LCS	Total Dissolved Solids	985 mg/L		1000 mg/L	99%	90-110%			
LCSD	Total Dissolved Solids	s 995 mg/L		1000 mg/L	100%	90-110%	1.0%	0-5%	
Replicate	Total Dissolved Solids	s 2460 mg/L	2460 mg/L				0.2%	0-5%	
QCBatch	ID TDS_09525	L							
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	995 mg/L		1000 mg/L	100%	90-110%			
LCSD	Total Dissolved Solids	s 1000 mg/L		1000 mg/L	100%	90-110%	0.5%	0-5%	
Replicate	Total Dissolved Solids	3880 mg/L	3950 mg/L				1.8%	0-5%	
QCBatch	ID TSS11238_	L							
Blank	Total Suspended Soli	ds ND mg/L							
LCS	Total Suspended Soli	ds 466 mg/L		500 mg/L	93%	85-115%			
LCSD	Total Suspended Soli	ds 467 mg/L		500 mg/L	93%	85-115%	0.2%	0-15%	
Replicate	Total Suspended Soli	ds 144 mg/L	148 mg/L				2.7%	0-15%	
QCBatch	ID MERC_07841	_L							
Blank	– Mercury	– ND mg/L							
LCS	Mercury	0.0094 mg/L		0.01 mg/L	94%	85-115%			
LCSD	Mercury	0.0094 mg/L		0.01 mg/L	94%	85-115%	0.2%	0-25%	
MS	Mercury	0.0094 mg/L	ND	0.01 mg/L	94%	80-120%			
MSD	Mercury	0.0094 mg/L	ND	0.01 mg/L	94%	80-120%	0.3%	0-25%	
QCBatch	ID META_02473	L							
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							

	Lead	ND mg/L				
	Manganese	ND mg/L				
	Nickel	ND mg/L				
	Selenium	ND mg/L				
	Silver	ND mg/L				
	Zinc	ND mg/L				
LCS	Arsenic	0.100 mg/L	0.1 mg/L	100%	85-115%	
	Barium	0.102 mg/L	0.1 mg/L	102%	85-115%	
	Cadmium	0.0969 mg/L	0.1 mg/L	97%	85-115%	
	Chromium	0.096 mg/L	0.1 mg/L	96%	85-115%	
	Copper	0.0971 mg/L	0.1 mg/L	97%	85-115%	
	Iron	10.1 mg/L	10.1 mg/L	100%	85-115%	
	Lead	0.093 mg/L	0.1 mg/L	93%	85-115%	





# **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	DID META_02473_L								
	Manganese	0.095 mg/L		0.1 mg/L	95%	85-115%			
	Nickel	0.098 mg/L		0.1 mg/L	98%	85-115%			
	Selenium	0.0995 mg/L		0.1 mg/L	100%	85-115%			
	Silver	0.097 mg/L		0.1 mg/L	97%	85-115%			
	Zinc	0.100 mg/L		0.1 mg/L	100%	85-115%			
LCSD	Arsenic	0.098 mg/L		0.1 mg/L	98%	85-115%	2.0%	0-20%	
	Barium	0.101 mg/L		0.1 mg/L	101%	85-115%	1.0%	0-20%	
	Cadmium	0.0972 mg/L		0.1 mg/L	97%	85-115%	0.3%	0-20%	
	Chromium	0.097 mg/L		0.1 mg/L	97%	85-115%	1.0%	0-20%	
	Copper	0.0968 mg/L		0.1 mg/L	97%	85-115%	0.3%	0-20%	
	Iron	10.1 mg/L		10.1 mg/L	100%	85-115%	0.0%	0-20%	
	Lead	0.093 mg/L		0.1 mg/L	93%	85-115%	0.0%	0-20%	
	Manganese	0.096 mg/L		0.1 mg/L	96%	85-115%	1.0%	0-20%	
	Nickel	0.097 mg/L		0.1 mg/L	97%	85-115%	1.0%	0-20%	
	Selenium	0.0984 mg/L		0.1 mg/L	98%	85-115%	1.1%	0-20%	
	Silver	0.097 mg/L		0.1 mg/L	97%	85-115%	0.0%	0-20%	
	Zinc	0.097 mg/L		0.1 mg/L	97%	85-115%	3.0%	0-20%	
MS	Arsenic	0.507 mg/L	0.003 mg/L	0.5 mg/L	101%	80-120%			
	Barium	0.555 mg/L	0.061 mg/L	0.5 mg/L	99%	80-120%			
	Cadmium	0.4817 mg/L	ND	0.5 mg/L	96%	80-120%			
	Chromium	0.491 mg/L	0.020 mg/L	0.5 mg/L	94%	80-120%			
	Copper	0.4847 mg/L	0.0118 mg/L	0.5 mg/L	95%	80-120%			
	Iron	49.6 mg/L	ND	50.5 mg/L	98%	80-120%			
	Lead	0.480 mg/L	0.008 mg/L	0.5 mg/L	94%	80-120%			
	Manganese	0.467 mg/L	ND	0.5 mg/L	93%	80-120%			
	Nickel	0.479 mg/L	ND	0.5 mg/L	96%	80-120%			
	Selenium	0.4975 mg/L	0.0150 mg/L	0.5 mg/L	97%	80-120%			
	Silver	0.472 mg/L	ND	0.5 mg/L	94%	80-120%			
	Zinc	0.485 mg/L	ND	0.5 mg/L	97%	80-120%			
MSD	Arsenic	0.489 mg/L	0.003 mg/L	0.5 mg/L	97%	80-120%	3.6%	0-20%	
	Barium	0.620 mg/L	0.061 mg/L	0.5 mg/L	112%	80-120%	11.1%	0-20%	
	Cadmium	0.4741 mg/L	ND	0.5 mg/L	95%	80-120%	1.6%	0-20%	
	Chromium	0.495 mg/L	0.020 mg/L	0.5 mg/L	95%	80-120%	0.8%	0-20%	
	Copper	0.4739 mg/L	0.0118 mg/L	0.5 mg/L	92%	80-120%	2.3%	0-20%	
	Iron	49.8 mg/L	ND	50.5 mg/L	99%	80-120%	0.4%	0-20%	
	Lead	0.473 mg/L	0.008 mg/L	0.5 mg/L	93%	80-120%	1.5%	0-20%	
	Manganese	0.471 mg/L	ND	0.5 mg/L	94%	80-120%	0.9%	0-20%	
	Nickel	0.485 mg/L	ND	0.5 mg/L	97%	80-120%	1.2%	0-20%	
	Selenium	0.5266 mg/L	0.0150 mg/L	0.5 mg/L	102%	80-120%	5.7%	0-20%	
	Silver	0.470 mg/L	ND	0.5 mg/L	94%	80-120%	0.4%	0-20%	
	Zinc	0.473 mg/L	ND	0.5 mg/L	95%	80-120%	2.5%	0-20%	



Droject Name: Daw Grab Samples Quarterly



Exide Technologies Billy King

# **Case Narrative**

r toject Name.	Naw Grab Samples Quarterry
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

Receipt temp: 1	I.5 °C on Ice				
Receipt method:	Customer Courie	r			
Custody seal intact:	<b>′es</b>		All sample	es / labels rece	eived intact: <b>Yes</b>
Customer Sample ID:	FD082818-01		Collected By:	Greg Henders	son
Oxidor Sample ID:	18080631-001		Collector Affiliation:	Exide Techno	ologies
Collected:	08/28/18 08:00		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	<b>Preservation</b>	<u>рН</u>
1000 mL Pla	stic 1	Grab		Temp	-
Customer Sample ID:	FD082818-02		Collected By:	Greg Henders	son
Oxidor Sample ID:	18080631-002		Collector Affiliation:	Exide Techno	ologies
Collected:	08/28/18 08:00		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Preservation	<u>рН</u>
250 mL Plas	tic 1	Grab		HNO3	<2
Customer Sample ID:	SO082818-01		Collected By:	Greg Henders	son
Oxidor Sample ID:	18080631-003		Collector Affiliation:	Exide Techno	ologies
Collected:	08/28/18 08:20		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	<u>Parts / Interval</u>	Preservation	<u>pH</u>
1000 mL Pla	stic 1	Grab		Temp	-
Customer Sample ID:	SO082818-02		Collected By:	Greg Henders	son
Oxidor Sample ID:	18080631-004		Collector Affiliation:	Exide Techno	ologies
Collected:	08/28/18 08:20		Matrix:	Liquid	
				Indicated	
Bottle Type	<u>Count</u>	Collection Method	<u>Parts / Interval</u>	Preservation	<u>Hq</u>
250 mL Plas	tic 1	Grab		HNO3	<2
Customer Sample ID:	LO082818-01		Collected By:	Greg Henders	son
Oxidor Sample ID:	18080631-005		Collector Affiliation:	Exide Techno	ologies
Collected:	08/28/18 08:35		Matrix:	Liquid	
	_	<b>.</b>		Indicated	
Bottle Type	Count	Collection Method	<u>Parts / Interval</u>	Preservation	<u>рН</u>
1000 mL Pla	stic 1	Grab		Temp	-





# **Sample Preservation Verification**

# Project Name: Raw Grab Samples Quarterly

ustomer Sample ID: LO082	818-02		Collected By:	Greg Henders	son
Oxidor Sample ID: 180806	31-006		Collector Affiliation:	Exide Techno	ologies
Collected: 08/28/*	8 08:35		Matrix:	Liquid	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	<u>рН</u>
250 mL Plastic	1	Grab		HNO3	<2

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





Order ID: 18080631 Date: 9/5/2018 Page 14 of 14

# Documentation

PROJECT DESCRIPTION: Raw Grab Samples Quarterly

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TECHNOLOGIES TECHNOLOGIES 0.0 box 250 Friso, 17 5934 Telephone 977-3573121 CHAIN OF CUSTODY RECORD

	TFALL: Influent water flows SAMPLER: Greg Henderson	UURE OF INDUSTRY: REFRESENTING: EXIDE Technologies udary Smelting	SIGNATURE: UN 9	MPLE     ANALYSES     DATE     PRESERVATION       PE **     REQUESTED     pH     TIME     INIT     REMARKSCONTAINERS/       PE **     REQUESTED     pH     TIME     IALL     ALL SAMPLES COOL ≤ 6° C	irab TDS-TSS 10-06 8-38-18/8-200 Am 64 None/1 liter	irab As.Cd.Cu.Mn. Ni.Ag.Fe.Ba.C r.Pb.Hg.Se.Zn 10.06 3-38-18/8-700 Am 6 H HNo3//250ml/plastic	itab TDS-TSS 4. 08 8-28-18/ 2.20 4m 6 H None/1 liter	irab As.Cd.Cu.Mn. NI.Ag.Fe.Ba.C r.Pb.Hg.Se.Zn $4.08$ $8-38-18/830$ $4_{M}$ $6.4$ HNo3//250ml/plastic	itab TDS-TSS D. OP 8-28-18/8:35 Am (5 H None/1 liter	irab As.Cd.Cu.Mn. Ni.Ag.Fe.Ba.C /2.09 & & /8/8=35.Am 6H HN03//250ml/plastic	
2631	echnologies		alazar ,	TIME (S)	8:00 AM	8:00 AM	8:20 AM	8:20 AM	8:35 Am	8:35 Am	
		fechnologies	[echnologies	<b>Fechnologies</b>	ı Street xas 75034	VTATIVE (S): , Eduardo :	DATE (S)	8-38-18	81-85-8	81-82-8	8-38-18
1PO3	INDUSTRY: EXIDE T	ADDRESS: 7471 Fith Frisco, Te	INDUSTRY REPRESEN	SAMPLE No. / IDENTIFICATION	FD082818-01	FD082818-02	SO082818-01	SO082818-02	L082818-01	L082818-02	
					ŝ	200	003	100	200	900	



E-MAIL RESULTS TO Billy, king@exide.com USE WASTE WATER REPORT FORMAT

FIELD INFORMATION: Raw Grab Samples Quarterly



February 28, 2019

Project No. 130208605

**Brad Weaver** Exide Technologies 7471 Fifth Street Frisco, Texas 75034

# RE: 2018 FOURTH QUARTER FRENCH DRAIN OPERATIONAL REPORT, EXIDE TECHNOLOGIES, INC., 7471 FIFTH STREET, FRISCO, TEXAS

Dear Mr. Weaver:

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Exide Technologies, Inc. (Exide) facility located at 7471 Fifth Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the French Drain System.

This report includes general FDS background information and summarizes operation of the FDS system during the fourth quarter 2018. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by TCEQ, are included in this report.

# 1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to storage tanks in the wastewater treatment area for off-Site disposal. Additional FDS information, including system specifications, is included in the French Drain Monitoring Plan (FDMP) that was previously

provided to TCEQ.

# 2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed during the fourth quarter 2018 included the following:

- Daily (week day) Inspections and Maintenance Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance
  - Inspect the FDS for sedimentation.
  - Inspect Flood Wall waterstop and joint fillers.
  - Inspect Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the fourth quarter 2018 were completed by both Exide Site personnel as well as Golder staff. Exide Site personnel conducted daily and weekly activities and Golder personnel conducted quarterly inspections.

No deviations from the FDMP occurred during the fourth quarter 2018. A more detailed description of the results of data collection activities and inspections is included in section 3.0 below.

# 3.0 OBSERVATIONS AND RESULTS

#### 3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the off-Site daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from https://www.wunderground.com/personal-weather-station/dashboard?ID=KTXDALLA25#history/s20171231/e20190201/mcustom).

### 3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the fourth quarter 2018. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint, and downstream end of the FDS. Monitoring well locations and Stewart Creek elevations are shown on Figure 1. In general, water levels did not vary significantly from previous readings in third quarter 2018 with some wells having a slight decrease in water level while others had a slight increase.

### 3.3 Floodwall Seepage

At the time of the wall inspection on December 4, 2018, minor cracks were observed in isolated areas along the wall. Exide was notified and repairs were made as needed. No seepage from the floodwall was observed. The floodwall waterstops and joint fillers were generally in good condition and no major cracks were observed.

# 3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on December 4, 2018. As such, no samples of white crystalline material were collected or analyzed.

## 3.5 Laboratory Analytical Results

Water samples were collected by Exide personnel from the FDS during the fourth quarter 2018. Sampling of the French Drain was conducted on December 1, 2018. All analytical results from these samples are included in Table 3 and Attachment A.

# 4.0 SUMMARY OF SYSTEM PERFORMANCE

Based on the results of the inspection and monitoring activities for the fourth quarter 2018 described above, the FDS appears to be operating as designed. Water was removed from the FDS as designed other than during periods of heavy rainfall or as otherwise noted on Table 1.

# 5.0 CLOSURE

Golder appreciates the opportunity to assist Exide with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

GOLDER ASSOCIATES INC.

Enily White

Emily P. White Project Geological Engineer

Anne Faith - Boyd

Anne M. Faeth-Boyd, P.G. *Associate and Senior Engineer* 

LBoot

Frederick M. Booth, P.G. (Louisiana) *Principal and Program Leader* 

EPW/AMF/FMB

Attachments: Table 1: French Drain Daily Flow Volumes Table 2: Perched and Groundwater Monitoring Well Water Elevations Table 3: French Drain Water Analytical Data Figure 1: Stewart Creek Transects Attachment A: French Drain Water Laboratory Analytical Results

# Table 1 French Drain Daily Flow Volumes

Oct-18			Nov-18	Dec-18				
Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)	Total Flow (gal)		Total Precip (in)
62,360		12.20	15,840 0			27,580		
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Monday, October 01, 2018	NR <sup>1</sup>	0.00	Thursday, November 01, 2018	3,130	0.00	Saturday, December 01, 2018	70	0.00
Tuesday, October 02, 2018	6,630	0.00	Friday, November 02, 2018	1,550	0.00	Sunday, December 02, 2018	NR	0.00
Wednesday, October 03, 2018	10,990	0.00	Saturday, November 03, 2018	1,590	0.34	Monday, December 03, 2018	NR <sup>3</sup>	0.00
Thursday, October 04, 2018	2,400	0.00	Sunday, November 04, 2018	ŃR	0.01	Tuesday, December 04, 2018	190	0.00
Friday, October 05, 2018	780	0.00	Monday, November 05, 2018	NR <sup>3</sup>	0.00	Wednesday, December 05, 2018	90	0.00
Saturday, October 06, 2018	330	0.00	Tuesday, November 06, 2018	1,780	0.00	Thursday, December 06, 2018	70	0.09
Sunday, October 07, 2018	NR	0.04	Wednesday, November 07, 2018	700	0.11	Friday, December 07, 2018	160	0.61
Monday, October 08, 2018	870	1.32	Thursday, November 08, 2018	420	0.00	Saturday, December 08, 2018	6,150	0.63
Tuesday, October 09, 2018	NR <sup>1</sup>	1.53	Friday, November 09, 2018	380	0.00	Sunday, December 09, 2018	NR	0.00
Wednesday, October 10, 2018	9,710	0.01	Saturday, November 10, 2018	440	0.00	Monday, December 10, 2018	5,810	0.00
Thursday, October 11, 2018	4,750	0.00	Sunday, November 11, 2018	NR	0.05	Tuesday, December 11, 2018	1,240	0.00
Friday, October 12, 2018	3,290	0.28	Monday, November 12, 2018	1,730	0.19	Wednesday, December 12, 2018	590	0.00
Saturday, October 13, 2018	NR <sup>1</sup>	1.73	Tuesday, November 13, 2018	NR <sup>4</sup>	0.00	Thursday, December 13, 2018	1,440	0.75
Sunday, October 14, 2018	NR	0.12	Wednesday, November 14, 2018	NR <sup>4</sup>	0.00	Friday, December 14, 2018	3,550	0.08
Monday, October 15, 2018	NR <sup>1</sup>	1.06	Thursday, November 15, 2018	1,670	0.00	Saturday, December 15, 2018	NR	0.00
Tuesday, October 16, 2018	NR <sup>1</sup>	0.97	Friday, November 16, 2018	440	0.00	Sunday, December 16, 2018	NR	0.00
Wednesday, October 17, 2018	NR <sup>1</sup>	0.39	Saturday, November 17, 2018	180	0.00	Monday, December 17, 2018	4,860	0.00
Thursday, October 18, 2018	NR <sup>1</sup>	0.01	Sunday, November 18, 2018	NR	0.00	Tuesday, December 18, 2018	880	0.00
Friday, October 19, 2018	NR <sup>1</sup>	1.99	Monday, November 19, 2018	410	0.00	Wednesday, December 19, 2018	1,030	0.12
Saturday, October 20, 2018	NR <sup>1</sup>	0.00	Tuesday, November 20, 2018	NR	0.00	Thursday, December 20, 2018	560	0.00
Sunday, October 21, 2018	NR <sup>1</sup>	0.00	Wednesday, November 21, 2018	NR	0.00	Friday, December 21, 2018	890	0.00
Monday, October 22, 2018	NR <sup>2</sup>	0.00	Thursday, November 22, 2018	NR	0.00	Saturday, December 22, 2018	NR	0.00
Tuesday, October 23, 2018	NR <sup>2</sup>	0.00	Friday, November 23, 2018	NR	0.00	Sunday, December 23, 2018	NR	0.00
Wednesday, October 24, 2018	NR <sup>2</sup>	1.93	Saturday, November 24, 2018	NR	0.00	Monday, December 24, 2018	NR	0.00
Thursday, October 25, 2018	NR <sup>2</sup>	0.03	Sunday, November 25, 2018	NR	0.00	Tuesday, December 25, 2018	NR	0.01
Friday, October 26, 2018	NR	0.01	Monday, November 26, 2018	1,070	0.00	Wednesday, December 26, 2018	NR	2.02
Saturday, October 27, 2018	7,010	0.00	Tuesday, November 27, 2018	140	0.00	Thursday, December 27, 2018	NR	0.23
Sunday, October 28, 2018	NR	0.00	Wednesday, November 28, 2018	60	0.00	Friday, December 28, 2018	NR	0.00
Monday, October 29, 2018	11,450	0.00	Thursday, November 29, 2018	80	0.00	Saturday, December 29, 2018	NR	0.00
Tuesday, October 30, 2018	2,640	0.00	Friday, November 30, 2018	70	0.00	Sunday, December 30, 2018	NR	0.04
Wednesday, October 31, 2018	1.510	0.78				Monday, December 31, 2018	NR	0.48

#### Notes:

Precipitation data obtained from: https://www.wunderground.com/personal-weatherstation/dashboard?ID=KTXDALLA25#history/s20171231/e20190201/mcustom

Daily flow volumes provided by Exide.

NR - Not Recorded.

<sup>1</sup> Did not pump; water over top of french drain because of amount of rainfall at the Site.

<sup>2</sup> Did not pump; no room in storage tank.

<sup>3</sup> Did not pump to accommodate Golder field sampling.

<sup>4</sup> Did not pump due to freezing temperatures.

Prepared by: BCW 01/10/2019 Checked by: EPW 02/19/2019 Reviewed by: AMF 02/21/2019, FMB 02/27/2019

Stewart Creek Elevations								
Surv	yoy Doint		Measurement	Elevation				
Juiv	eyPoint		Date	(	ft msl)			
Transect 1								
Top of North Bank			3/7/2016		628.74			
Toe of North Bank			3/7/2016	624.79				
Creek Centerline			3/7/2016	622.79				
Toe of South Bank			3/7/2016	624.27				
Top of South Bank			3/7/2016	634.09				
Transect 2								
Top of North Bank			3/7/2016	627.97				
Toe of North Bank			3/7/2016	623.57				
Toe of South Bank			3/7/2016		624.04			
Top of South Bank			3/7/2016		630.52			
Transect 3								
Top of North Bank			3/7/2016	628.20				
Toe of North Bank			3/7/2016	622.70				
Toe of South Bank			3/7/2016	622.88				
Top of South Bank			3/7/2016	628.18				
	TOC Elevation	Screen	Measurement	Depth to	Groundwater			
Well ID		Interval		Groundwater	Elevation			
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)			
MW-26	631.93	5-15	3/11/2013	9.98	621.95			
(Groundwater)			4/5/2013	9.52	622.41			
			4/29/2013	9.21	622.72			
			1/21/2014	5.80	626.13			
			7/29/2014	5.79	626.14			
			9/23/2014	8.9	623.03			
			6/12/2015	5.32	626.61			
			9/8/2015	5.72	626.21			
			12/17/2015	5.32	626.61			
			2/29/2016	5.41	626.52			
			6/1/2016	5.47	626.46			
			9/8/2016	5.51	626.42			
			12/2/2016	5.65	626.28			
			3/2/2017	5.81	626.12			
			5/4/2017	6.21	625.72			
			8/28/2017	5.56	626.37			
			11/27/2017	5.71	626.22			
			2/15/2018	5.75	626.18			
			5/9/2018	5.65	626.28			
			9/24/2018	NA	NA			
			12/4/2018	5.60	626.33			

	TOC	Screen	Measurement	Depth to	Groundwater	
Well ID	Elevation	Interval		Groundwater	Elevation	
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)	
MW-29	633.51	4.5-14.5	3/11/2013	13.08	620.43	
(Groundwater)			4/5/2013	6.96	626.55	
			4/29/2013	6.56	626.95	
			1/21/2014	6.62	626.89	
			7/29/2014	6.57	626.94	
			9/23/2014	6.04	627.47	
			6/12/2015	5.21	628.30	
			9/8/2015	6.35	627.16	
			12/17/2015	5.67	627.84	
			2/29/2016	5.79	627.72	
			6/1/2016	5.69	627.82	
			9/8/2016	5.67	627.84	
			12/2/2016	6.25	627.26	
			3/2/2017	6.51	627.00	
			5/4/2017	5.80	627.71	
			8/28/2017	5.90	627.61	
			11/27/2017	6.77	626.74	
			2/15/2018	6.77	626.74	
			5/9/2018	5.95	627.56	
			9/24/2018	NA	NA	
			12/4/2018	6.12	627.39	
MW-31	636.71	8-23	5/13/2013	10.58	626.13	
(Groundwater)			1/21/2014	10.87	625.84	
			7/29/2014	10.81	625.90	
			9/23/2014	11.32	625.39	
			6/12/2015	9.61	627.10	
			9/8/2015	10.53	626.18	
			12/17/2015	9.42	627.29	
			2/29/2016	9.78	626.93	
			6/1/2016	9.82	626.89	
			9/8/2016	9.90	626.81	
			12/2/2016	10.21	626.50	
			3/2/2017	12.23	624.48	
			5/4/2017	10.58	626.13	
			8/28/2017	9.99	626.72	
			11/27/2017	10.82	625.89	
			2/15/2018	10.90	625.81	
			5/9/2018	10.19	626.52	
			9/24/2018	NA	NA	
			12/4/2018	10.42	626.29	

	TOC	Screen	Measurement	Depth to	Groundwater
Well ID	Elevation	Interval		Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-32	630.96	2.5-5	1/21/2014	4.16	626.80
(Perched)			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
			11/27/2017	3.54	627.42
			2/15/2018	3.21	627.75
			5/9/2018	3.30	627.66
			9/24/2018	NA	NA
101/00	(00.50	0 5 5	12/4/2018	2.70	628.26
MW-33	632.59	2.5-5	1/21/2014	1.09	631.50
(Perched)			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016 0/0/201/	1.09	031.50 (21.52
			9/8/2016	1.07	031.52
			12/2/2010	0.95	031.04
			3/2/2017 E/4/2017	0.88	031.71
			5/4/2017 9/20/2017	0.91	031.08
			0/20/2017	0.86	031.73
			11/2//2017 2/1E/2010	0.85	031.74
			2/15/2016 5/0/2019	0.81	031.70
			0/2//2010	0.80	031.79 NA
			9/24/2010 10///2010		NA 621.64
N/N/ 2/	622.02	255	1/21/2010	0.75	629 52
(Porchod)	032.03	2.0-0	7/20/2014	4.31	620.52
(reiched)			0/22/2014	4.45	620.30
			6/12/2014	4.45	620.30
			12/17/2015	3.42	629.80
			2/20/2015	1.05	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
			11/27/2017	3.62	629 21
			2/15/2018	3.71	629.12
			5/9/2018	3.57	629.26
			9/24/2018	NA	NA
			12/4/2018	3.08	629.75
Table 2Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC	Screen	Measurement	Depth to	Groundwater
weilTD	Elevation	Interval		Groundwater	Elevation
	(ft msl)	(ft bgs)	Date	(ft btoc)	(ft msl)
MW-35	632.55	2.5-5	1/21/2014	DRY	DRY
(Perched)			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
			5/4/2017	4.58	627.97
			8/28/2017	4.16	628.39
			11/27/2017	3.98	628.57
			2/15/2018	3.81	628.74
			5/9/2018	3.92	628.63
			9/24/2018	NA	NA
			12/4/2018	3.74	628.81
MW-46	630.98	10-20	1/21/2014	5.21	625.77
(Groundwater)			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
			11/27/2017	5.41	625.57
			2/15/2018	5.81	625.17
			5/9/2018	4.24	626.74
			9/24/2018	NA	NA
			12/4/2018	4.61	626.37

Notes:

1. bgs - below ground surface.

Prepared by: BCW 01/11/2019 Checked by: EPW 02/18/2019

2. msl - above mean sea level.
3. btoc - below top of casing.

Reviewed by: AMF 02/21/2019, FMB 02/27/2019

4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.

5. NA - not accessible due to Site conditions.

	Sam	ole ID	Samp	le ID
	FD120	118-01	FD120	118-02
	Labora	tory ID	Labora	tory ID
	181200	02-001	181200	02-002
	Date Co	ollected	Date Co	ollected
	12/1/20	18 09:15	12/1/20	18 09:15
Metals				
Parameter:	Result	Units	Result	Units
Arsenic	NA	mg/L	ND	mg/L
Barium	NA	mg/L	0.068	mg/L
Cadmium	NA	mg/L	ND	mg/L
Chromium	NA	mg/L	0.011	mg/L
Copper	NA	mg/L	0.0047 J-5	mg/L
Iron	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.006	mg/L
Manganese	NA	mg/L	ND	mg/L
Nickel	NA	mg/L	ND	mg/L
Selenium	NA	mg/L	0.0062	mg/L
Silver	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	ND	mg/L
Mercury	NA	mg/L	ND	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Total Suspended Solids	2.0 J-5	mg/L	NA	mg/L
Total Dissolved Solids	1,430	mg/L	NA	mg/L

Notes:

1) NA - Not Analyzed

Prepared by: BCW 01/11/2019 Checked by: EPW 02/18/2019

2) ND - Not Detected Rev

Reviewed by: AMF 02/21/2019, FMB 02/27/2019

3) mg/L - milligrams per liter

4) J-5 - the associated concentration is an estimated value between the sample detection limit and the adjusted method quantitation limit.



#### LEGEND

- Monitoring Well Location
- Transect Location 0
- French Drain
- Flood Wall
- Approximate Creek Centerline



NOTE(S) 1. ELEVATIONS SHOWN ARE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

REFERENCE(S) 1. ELEVATIONS COLLECTED BY BRITTAIN & CRAWFORD, LLC ON MARCH 7, 2016 2. AERIAL IMAGERY - APRIL, 2017

# CLIENT EXIDE TECHNOLOGIES

PROJECT FRENCH DRAIN QUARTERLY REPORT FRISCO, TEXAS

#### TITLE STEWART CREEK TRANSECTS

CONSULTANT

PROJECT NO.

130208605



CONTROL

1302086Y003

YYYY-MM-DD	2019-02-20	
DESIGNED	JWT	
PREPARED	JWT	
REVIEWED	EPW	
APPROVED	AMF	
	REV.	FIGURE
	0	1





Order ID: 18120002 Date: 12/7/2018 Page 1 of 14

Friday, December 07, 2018

Exide Technologies Billy King P.O. Box 250 Frisco, TX 75034 Tel: (972) 335-2121 Fax: (972) 377-2707

#### Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	Sample ID	<u>Matrix</u>	Collected	Analysis
18120002-001	FD120118-01	Liquid	12/1/2018 09:15	Total Dissolved Solids, Total Suspended Solids
18120002-002	FD120118-02	Liquid	12/1/2018 09:15	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18120002-003	SO120118-01	Liquid	12/1/2018 09:45	Total Dissolved Solids, Total Suspended Solids
18120002-004	SO120118-02	Liquid	12/1/2018 09:45	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
18120002-005	LO120118-01	Liquid	12/1/2018 10:15	Total Dissolved Solids, Total Suspended Solids
18120002-006	LO120118-02	Liquid	12/1/2018 10:15	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAC except where noted. All non-NELAC methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,

Charles Brungardt President





# **Analytical Report**

Customer Sample ID:	FD120	0118-01						
Oxidor Sample ID:	18120	002-001			Matrix: L	iquid		
Sample Received:	12/3/2	018		Sam	ple Collected: 1	2/1/2018 09	):15	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	20.0	25	1430	<b>)</b> mg/L	12/04/18 10:20	SM-2540-C	K.E.L.	
Total Suspended Solids	1.0	5	2.0	<b>)</b> mg/L	12/03/18 12:45	SM-2540-D	K.E.L.	J-5





# **Analytical Report**

Customer Sample ID:	FD120	118-02						
Oxidor Sample ID:	18120	002-002			Matrix: L	iquid		
Sample Received:	12/3/2	018		Sam	ple Collected: 1	2/1/2018 0	9:15	
Parameter	SDL	MQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
Digested by method 200.8 on 12/04/18 at	12:10							
Arsenic	0.003	0.005	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Barium	0.003	0.005	0.068	mg/L	12/05/18 11:33	200.8	S.M.	
Cadmium	0.0005	0.001	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Chromium	0.003	0.005	0.011	mg/L	12/05/18 11:33	200.8	S.M.	
Copper	0.0025	0.005	0.0047	mg/L	12/05/18 11:33	200.8	S.M.	J-5
Iron	0.25	0.5	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Lead	0.003	0.005	0.006	mg/L	12/05/18 11:33	200.8	S.M.	
Manganese	0.001	0.002	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Nickel	0.003	0.005	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Selenium	0.0025	0.005	0.0062	mg/L	12/05/18 11:33	200.8	S.M.	
Silver	0.001	0.001	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Zinc	0.003	0.005	ND	mg/L	12/05/18 11:33	200.8	S.M.	
Digested by method 245.1 on 12/04/18 at	09:18							
Mercury	0.0001	0.0002	ND	mg/L	12/04/18 14:30	245.1	L.Z.	





# Sample Cross Reference

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD120118-01	18120002-001	Total Dissolved Solids	SM-2540-C	TDS13125_L
		Total Suspended Solids	SM-2540-D	TSS05639_L
FD120118-02	18120002-002	Mercury	245.1	MERC_00542_L
		Arsenic	200.8	META_17073_L
		Selenium	200.8	META_17073_L
		Silver	200.8	META_17073_L
		Zinc	200.8	META_17073_L
		Manganese	200.8	META_17073_L
		Lead	200.8	META_17073_L
		Iron	200.8	META_17073_L
		Copper	200.8	META_17073_L
		Chromium	200.8	META_17073_L
		Nickel	200.8	META_17073_L
		Barium	200.8	META_17073_L
		Cadmium	200.8	META_17073_L
SO120118-01	18120002-003	Total Dissolved Solids	SM-2540-C	TDS13125_L
		Total Suspended Solids	SM-2540-D	TSS05639_L
SO120118-02	18120002-004	Mercury	245.1	MERC_00542_L
		Copper	200.8	META_17073_L
		Silver	200.8	META_17073_L
		Selenium	200.8	META_17073_L
		Nickel	200.8	META_17073_L
		Manganese	200.8	META_17073_L
		Iron	200.8	META_17073_L
		Chromium	200.8	META_17073_L
		Zinc	200.8	META_17073_L
		Cadmium	200.8	META_17073_L
		Barium	200.8	META_17073_L
		Arsenic	200.8	META_17073_L
		Lead	200.8	META_17073_L
LO120118-01	18120002-005	Total Dissolved Solids	SM-2540-C	TDS13125_L
		Total Suspended Solids	SM-2540-D	TSS05639_L
LO120118-02	18120002-006	Mercury	245.1	MERC_00542_L
		Lead	200.8	META_17073_L
		Arsenic	200.8	META_17073_L
		Barium	200.8	META_17073_L
		Cadmium	200.8	META_17073_L
		Chromium	200.8	META_17073_L
		Iron	200.8	META_17073_L
		Manganese	200.8	META_17073_L
		Nickel	200.8	META_17073_L
		Selenium	200.8	META_17073_L
		Silver	200.8	META_17073_L
		Zinc	200.8	META_17073_L
		Copper	200.8	META_17073_L





## **QC Summary**

			Reference			Rec		RPD	
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatcl	nID TDS13125_L								
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	1000 mg/L		1000 mg/L	100%	90-110%			
LCSD	Total Dissolved Solids	1000 mg/L		1000 mg/L	100%	90-110%	0.0%	0-5%	
Replicate	Total Dissolved Solids	585 mg/L	590 mg/L				0.9%	0-5%	
QCBatcl	nID TSS05639_L								
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	462 mg/L		500 mg/L	92%	85-115%			
LCSD	Total Suspended Solids	477 mg/L		500 mg/L	95%	85-115%	3.2%	0-15%	
Replicate	Total Suspended Solids	170 mg/L	184 mg/L				7.9%	0-15%	
QCBatcl	nID MERC_00542_L								
Blank	Mercury — —	ND mg/L							
LCS	Mercury	0.0093 mg/L		0.01 mg/L	93%	85-115%			
LCSD	Mercury	0.0094 mg/L		0.01 mg/L	94%	85-115%	1.4%	0-25%	
MS	Mercury	0.0094 mg/L	ND	0.01 mg/L	94%	80-120%			
MSD	Mercury	0.0094 mg/L	ND	0.01 mg/L	94%	80-120%	0.2%	0-25%	
QCBatcl	nID META 17073 L								
Blank	Arsenic – –	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.477 mg/L		0.5 mg/L	95%	85-115%			
	Barium	0.492 mg/L		0.5 mg/L	98%	85-115%			
	Cadmium	0.4762 mg/L		0.5 mg/L	95%	85-115%			
	Chromium	0.488 mg/L		0.5 mg/L	98%	85-115%			
	Copper	0.4810 mg/L		0.5 mg/L	96%	85-115%			
	Iron	49.6 mg/L		50.5 mg/L	98%	85-115%			
	Lead	0.475 mg/L		0.5 mg/L	95%	85-115%			
	wanganese	0.475 mg/L		0.5 mg/L	95%	85-115%			
	NICKEI	0.470 mg/L		0.5 mg/L	94%	85-115%			
	Selenium	0.4826 mg/L		0.5 mg/L	97%	85-115%			
	Silver	0.496 mg/L		0.5 mg/L	99%	85-115%			
	ZINC	0.470 mg/L		0.5 mg/L	94%	85-115%			





## **QC Summary**

			Reference			Rec		RPD	<u> </u>
QC Type	Parameter	Result	Value	Spike Conc	Rec	Limits	RPD	Limits	Flags
QCBatch	ID META_17073_L								
LCSD	Arsenic	0.474 mg/L		0.5 mg/L	95%	85-115%	0.6%	0-20%	
	Barium	0.489 mg/L		0.5 mg/L	98%	85-115%	0.6%	0-20%	
	Cadmium	0.4827 mg/L		0.5 mg/L	97%	85-115%	1.4%	0-20%	
	Chromium	0.490 mg/L		0.5 mg/L	98%	85-115%	0.4%	0-20%	
	Copper	0.4848 mg/L		0.5 mg/L	97%	85-115%	0.8%	0-20%	
	Iron	50.0 mg/L		50.5 mg/L	99%	85-115%	0.8%	0-20%	
	Lead	0.459 mg/L		0.5 mg/L	92%	85-115%	3.4%	0-20%	
	Manganese	0.486 mg/L		0.5 mg/L	97%	85-115%	2.3%	0-20%	
	Nickel	0.481 mg/L		0.5 mg/L	96%	85-115%	2.3%	0-20%	
	Selenium	0.4881 mg/L		0.5 mg/L	98%	85-115%	1.1%	0-20%	
	Silver	0.489 mg/L		0.5 mg/L	98%	85-115%	1.4%	0-20%	
	Zinc	0.483 mg/L		0.5 mg/L	97%	85-115%	2.7%	0-20%	
MS	Arsenic	0.486 mg/L	ND	0.5 mg/L	97%	80-120%			
	Barium	0.552 mg/L	0.068 mg/L	0.5 mg/L	97%	80-120%			
	Cadmium	0.4569 mg/L	ND	0.5 mg/L	91%	80-120%			
	Chromium	0.491 mg/L	0.011 mg/L	0.5 mg/L	96%	80-120%			
	Copper	0.4758 mg/L	0.0047 mg/L	0.5 mg/L	94%	80-120%			
	Iron	48.8 mg/L	ND	50.5 mg/L	97%	80-120%			
	Lead	0.472 mg/L	0.006 mg/L	0.5 mg/L	93%	80-120%			
	Manganese	0.469 mg/L	ND	0.5 mg/L	94%	80-120%			
	Nickel	0.467 mg/L	ND	0.5 mg/L	93%	80-120%			
	Selenium	0.4892 mg/L	0.0062 mg/L	0.5 mg/L	97%	80-120%			
	Silver	0.470 mg/L	ND	0.5 mg/L	94%	80-120%			
	Zinc	0.471 mg/L	ND	0.5 mg/L	94%	80-120%			
MSD	Arsenic	0.473 mg/L	ND	0.5 mg/L	95%	80-120%	2.7%	0-20%	
	Barium	0.564 mg/L	0.068 mg/L	0.5 mg/L	99%	80-120%	2.2%	0-20%	
	Cadmium	0.4629 mg/L	ND	0.5 mg/L	93%	80-120%	1.3%	0-20%	
	Chromium	0.508 mg/L	0.011 mg/L	0.5 mg/L	99%	80-120%	3.4%	0-20%	
	Copper	0.4652 mg/L	0.0047 mg/L	0.5 mg/L	92%	80-120%	2.3%	0-20%	
	Iron	50.2 mg/L	ND	50.5 mg/L	99%	80-120%	2.8%	0-20%	
	Lead	0.472 mg/L	0.006 mg/L	0.5 mg/L	93%	80-120%	0.0%	0-20%	
	Manganese	0.478 mg/L	ND	0.5 mg/L	96%	80-120%	1.9%	0-20%	
	Nickel	0.474 mg/L	ND	0.5 mg/L	95%	80-120%	1.5%	0-20%	
	Selenium	0.4778 mg/L	0.0062 mg/L	0.5 mg/L	94%	80-120%	2.4%	0-20%	
	Silver	0.477 mg/L	ND	0.5 mg/L	95%	80-120%	1.5%	0-20%	
	Zinc	0.456 mg/L	ND	0.5 mg/L	91%	80-120%	3.2%	0-20%	





#### **Case Narrative**

Project Name:	Raw Grab Samples Quarterly
J-5	The associated concentration is an estimated value detected between the SDL and the Adjusted MQL
Dx [Value]	Sample diluted by [Value] amount
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution
ND	Analyte not detected at or above SDL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory
*	Refer to QC section and / or Case Narrative

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidor Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.





# **Sample Preservation Verification**

Receipt temp:	3.1 °C on Ice			
Receipt method:	Customer Courier			
Custody seal intact: Y	Yes		All samples / labels received intact: Yes	
Customer Sample ID:	FD120118-01		Collected By: Greg Henderson	
Oxidor Sample ID:	18120002-001		Collector Affiliation: Exide Technologies	
Collected:	12/01/18 09:15		Matrix: Liquid	
			Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval Preservation pH	
1000 mL Pla	istic 1	Grab	Temp -	
Customer Sample ID:	FD120118-02		Collected By: Greg Henderson	
Oxidor Sample ID:	18120002-002		Collector Affiliation: Exide Technologies	
Collected:	12/01/18 09:15		Matrix: Liquid	
			Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval Preservation pH	
250 mL Plas	tic 1	Grab	HNO3 <2	
Customer Sample ID:	SO120118-01		Collected By: Greg Henderson	
Oxidor Sample ID:	18120002-003		Collector Affiliation: Exide Technologies	
Collected:	12/01/18 09:45		Matrix: Liquid	
			Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval Preservation pH	
1000 mL Pla	istic 1	Grab	Temp -	
Customer Sample ID:	SO120118-02		Collected By: Greg Henderson	
Oxidor Sample ID:	18120002-004		Collector Affiliation: Exide Technologies	
Collected:	12/01/18 09:45		Matrix: Liquid	
	<b>.</b> .		Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval Preservation pH	
250 mL Plas	tic 1	Grab	HNO3 <2	
Customer Sample ID:	LO120118-01		Collected By: Greg Henderson	
Oxidor Sample ID:	18120002-005		Collector Affiliation: Exide Technologies	
Collected:	12/01/18 10:15		Matrix: Liquid	
D-44 - T	<b>0</b>		Indicated	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval Preservation pH	
1000 mL Pla	isuc 1	Grab	remp -	





# **Sample Preservation Verification**

## Project Name: Raw Grab Samples Quarterly

ustomer Sample ID: LO120	118-02		Collected By:	Greg Henders	son
Oxidor Sample ID: 181200	02-006		Collector Affiliation:	Exide Techno	logies
Collected: 12/01/1	8 10:15		Matrix:	Liquid	
Bottle Type	<u>Count</u>	Collection Method	Parts / Interval	Indicated Preservation	<u>рН</u>
250 mL Plastic	1	Grab		HNO3	<2

Sample conditions at time of receipt at laboratory verified in part or in whole by:

N.F.





Order ID: 18120002 Date: 12/7/2018 Page 14 of 14

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#### Documentation

PROJECT DESCRIPTION: Raw Grab Samples Quarterly

C 25cm INITIALS GH GΗ ΗÐ ΕÐ ΗÐ ΕH 0/01 PRESERVATION/ REMARKS/CONTAINERS / ALL SAMPLES COOL ≤ 6° C 12--3-15 DATE 12/3/18 3.10C DATE HNo3//250ml/plastic HNo3//250ml/plastic None/1 liter None/1 liter None/1 liter HNo3//250ml/plastic REPRESENTING REPRESENTING DXIDOR EXIDE Technologies Greg Henderson 3 INIT 3 KARAMULU REPRESENTING: **ECEIVED BY:** (Sgnature) SIGNATURE: DATE SAMPLER: RECEIVED CHAIN OF CUSTODY RECORD P.O. Box 250 Frisco, TX 75034 Telephone 972-335-2121 Facsimile 972-377-2707 5-01 12.7 1 5.01 E-MAIL RESULTS TO Billy.king@exide.com Hq 7-25 AM 4462V 77 7. USE WASTE WATER REPORT FORMAT 3 G = GRABAs,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn OUTFALL: Influent water flows As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn ANALYSES REQUESTED SST-SQT TDS-TSS N:10m TDS-TSS NATURE OF INDUSTRY: Secondary Smelting FC = FLOW WEIGHTED COMPOSITE (96 PARTS) TIME 12-3-18 SAMPLE TYPE \*\* 12-3-18 Grab Grab Grab Grab Grab Grab DATE DATE REPRESENTING EXIDE 9-15 AM 9:45 AM ž٧ TIME (S) 10:15 Am 10-15 Am 9215 AM 9245 AM REPRESENTI FIELD INFORMATION: Raw Grab Samples Quarterly ADDRESS: 7471 Fith Street Frisco, Texas 75034 INDUSTRY REPRESENTATIVE (S): , Eduardo Salazar INDUSTRY: EXIDE Technologies \*\* TC = TIME COMPOSITE (96 PARTS) 81-1-21 81-1-41 DATE (S) 12-1-18 81-1-61 12-1-18 81-1-01 HED BY: (Signature) MANDY SAMPLE No. / IDENTIFICATION FD120118-02 SO120118-02 FD120118-01 SO120118-01 L120118-02 L120118-01 54 200 000 003 700 200 00