

**R&R**  
RUSSELL & RODRIGUEZ, L.L.P.  
ATTORNEYS AT LAW

1633 WILLIAMS DRIVE  
BUILDING 2, SUITE 200  
GEORGETOWN, TEXAS 78628

[krussell@txadminlaw.com](mailto:krussell@txadminlaw.com)

RECEIVED

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COOK-JOYCE, INC.

PHONE (512) 930-1317

FAX (866) 929-1641

WWW.TXADMINLAW.COM

August 29, 2014

*Via Certified U.S. Mail, Return Receipt Requested*

Mr. Richard Hyde, P.E. – CMRRR No. 7013 1090 0002 1772 6529  
Executive Director  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, Texas 78753

Sunita Singhvi, Chief – CMRRR No. 7013 1090 0002 1772 6536  
Compliance and Enforcement Section (6EN-HE)  
Compliance Assurance and Enforcement Division  
United States Environmental Protection Agency, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733  
Attn: Paul James

Re: City of Frisco Comments; May 22, 2012 Exide Technologies Revised Affected Property Assessment Report; Former Frisco Recycling Center;  
TCEQ Agreed Order Docket No. 2011-1712-IHW-E; IHW Permit No. HW-50206  
TCEQ SWR No. 30516; Customer No. CN600129779; Regulated Entity No. RN100218643;  
EPA ID No. TXD006451090; EPA Administrative Order on Consent RCRA 06-2012-0966

Dear Mr. Hyde and Ms. Singhvi:

By letter dated July 18, 2014 the City of Frisco ("City") submitted its initial comments on the above referenced revised APAR for Exide's former operating facility ("FOF" or "FOP") in Frisco, Texas. That submittal contained the City's review of the groundwater related portions of the revised APAR. The City is herein providing comments on the rest of the revised APAR. The City's comments are based on its review of the revised APAR as well as the review by its consultants, CJI and Apex TITAN, Inc. (formerly SWG).

The revised APAR contains both inaccurate information and flawed conclusions. The revised APAR, and supporting investigation, remains incomplete in a number of aspects. It is clear Exide continues in its attempt to minimize the amount of contaminated media, both hazardous and non-hazardous, at the FOF. This intentional minimization of the documented contamination forms the basis for Exide's flawed conclusion that little remediation is required for site closure and minimal

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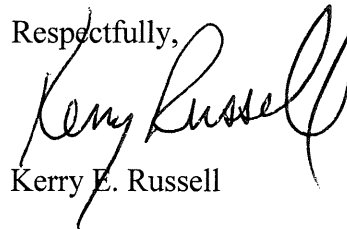
institutional engineering controls are required to eliminate future off-site movements of the constituents of concern ("COCs"). Those constituents of concern include arsenic as well as lead, cadmium, antimony, and selenium.

Based on data currently available, it is clear the FOF must be completely contained by permanent engineering controls to eliminate current and future contamination of Stewart Creek. The containment design must address the significant amount of hazardous waste present in the known on-site waste management areas and the Class 2 Landfill. The containment design must address both surface and subsurface movement of the COCs.

The City believes the TCEQ should reject the revised APAR and require Exide to address the issues raised in the City's comments with a complete site investigation and a comprehensive revised APAR.

If you, or your staff, have any questions regarding this submittal, please do not hesitate to call.

Respectfully,

A handwritten signature in black ink, appearing to read "Kerry Russell", with a stylized flourish at the end.

Kerry E. Russell

Cc: Mr. Gary Beyer  
Mr. Bill Shafford  
TCEQ Regional Office  
Mr. Mack Borchardt  
Mr. Wade Wheatley  
Ms. Rusty Simpson  
Mr. Bruce Cole  
Mr. Matthew Love  
Ms. Aileen Hooks

**City of Frisco Comments**  
**Exide Former Operating Facility**  
**Revised APAR**  
**August 29, 2014**

The revised APAR is incomplete, as noted by Exide in the APAR itself. Therefore, the City's comments are limited to the current revision of Exide's APAR for the FOF. The City's comments may be expanded as further information becomes available. Rather than follow the revised APAR page by page, the City's comments are generally grouped as follows:

1. Soil contamination issues
2. Additional ground water contamination issues
3. Stewart Creek issues
4. Arsenic issues
5. Risk assessment issues
6. Other issues

**Soil Assessment**

The soil assessment at the FOF is incomplete because, with one possible exception, none of the ten Affected Properties identified in the APAR have been completely delineated. This conclusion is based on the following:

- a. Areas with arsenic concentrations above the Residential Assessment Level (RAL) were not included in Affected Property No. 1 (the wooded area north of the northern tributary). Vertical delineation was not completed in the vicinity of E-11C. Additional assessment should be completed to fully delineate off-site exceedances originating from the FOF where a PCLE zone does not exist. This assessment should specifically include the area west of E-11C where all five metal COCs exceeded their respective RALs.
- b. The vertical and lateral delineation of benzene in soil is not complete in Affected Property No. 2 (the production area). Benzene above the RAL was reported in 2013-STB-6. No VOC data from a deeper sample, or between this location and Stewart Creek were obtained. Vertical and/or lateral delineation of the metal COCs is also not complete in Affected Property No. 2.
- c. The vertical delineation of lead and, potentially, antimony in soil is not complete in Affected Property No. 3 (the South Area, including the South Disposal Area). Delineation in the South Area is incomplete and, based on available data, the RALE zone should be enlarged to include both sides of Stewart Creek.
- d. The vertical delineation of lead in soil is not complete in Affected Property No. 4 (Crystallizer Way).

- e. The lateral delineation of arsenic is not complete in Affected Property No. 5 (the area to the west and southwest of the Class 2 Landfill).
- f. Delineation is not complete in Affected Property No. 6 (the Lake Parcel) because lead was delineated to a critical PCL of 275 mg/kg versus 250 mg/Kg (which is the cleanup limit for this tract agreed to by the City and Exide).
- g. The vertical delineation of lead in soil is not complete in Affected Property No. 7 (north tributary at boundary).
- h. As described in detail below, delineation of Affected Property No. 8 (Stewart Creek sediment) remains incomplete as of this date.
- i. Sample collection has not occurred in Possible Affected Properties 9 and 10. Both must be investigated.
- j. Of the ten new soil borings around the perimeter of the Class 2 Landfill, lead, arsenic, tin, and selenium were detected above the RAL in boring 2013-C2L-06. Lateral delineation of these COCs should be done in this area. The delineation of lead, tin, and selenium is also incomplete in the area of boring 2014-C2L-06A and 2014-C2L-06C.
- k. Assessment of the North Wooded Area is incomplete and the RALE zone on the east and west portions should not be truncated because there are no indicated PCLE zones on the adjacent Undeveloped Buffer Property.
- l. Vertical delineation is incomplete at boring 2013-FWFS-5B since the deepest sample (5-6' bgs) had a lead concentration of 10,200 mg/kg.
- m. Although TCEQ requested additional soil delineation around the Crystallization Unit, only one boring was completed (2013-CUF-11). This area should be completely delineated, both lateral and vertical, and the RALE zone along Crystallizer Way should be extended to the east in the vicinity of 2013-CUFT-4.

## **Groundwater Assessment**

Comments provided in the City's July 18, 2014 groundwater submittal are not repeated herein. However, the revised APAR contains conclusions relating to selenium identified in groundwater adjacent to the Class 2 Landfill, which are discussed below.

Page xvii of the revised APAR concludes that,

"At LMW-9, total and dissolved selenium concentrations exceeded the RAL [Residential Assessment Level] in March and April 2013. The Eagle Ford Shale is known to contain gypsum. Selenium commonly is an impurity in gypsum, where selenium replaces calcium in the crystal matrix, potentially serving as a natural source of selenium. In addition, LMW-9 is not located at a potential point of discharge of groundwater to surface water. An attenuation evaluation (Appendix 11) for potential migration of selenium to the nearest stream (the North Tributary) demonstrates that potential

migration will not result in an exceedance at the POE [Point of Exposure]. Selenium in LMW-9 is defined to RALs at downgradient wells LMW-17 and LMW-8.”

An identical statement appears on page 5-4 of the revised APAR.

The City notes that LMW-9 is located adjacent to the Class 2 Landfill whose leachate has consistently contained elevated concentrations of selenium. If the selenium in groundwater at LMW-9 is naturally occurring, similar concentrations should have been found elsewhere on the FOF or on the adjacent J-Parcel. They were not. Finally, the document *Selenium Occurrence in Certain Soils in the United States, With a Discussion of Related Topics: Sixth Report*<sup>1</sup>, directly addresses selenium in the Eagle Ford Shale. It states the following regarding various Eagle Ford outcrop areas: “In none of these was there observed any marked concentration of selenium. Likewise, the shale, soil, and vegetation samples... were found to be exceptionally low in selenium content.”

The only logical conclusion is that the selenium found in LMW-9 is leaking from the Class 2 Landfill, which contains improperly treated hazardous waste. Exide has presented no data to support any alternate conclusion.

### **Stewart Creek Investigation**

Exide’s investigation of Stewart Creek remains incomplete. The revised APAR has not been supplemented by data from recent (2014) sediment and slag sampling in Stewart Creek by Golder, Apex, and TCEQ Region 4. The data developed by Apex is provided herein for TCEQ review. The recently released Golder data is similar to the APEX data. The data demonstrates that significant contamination of Stewart Creek has resulted from Exide activities at the FOF.

In addition, Exide has made a number of unsupported assertions regarding Stewart Creek in the APAR. Those assertions include:

- 1) A series of statements that appear to question the TCEQ’s designation of Stewart Creek as a perennial stream. Those statements include:
  - a. Page 1-39 of the revised APAR states, “Upstream of the FOP a portion of Stewart Creek is a neighborhood fountain that effectively provides a near constant supply of water to the creek. Upstream of that fountain, the creek has been observed dry.” There is no supporting evidence such as photographs of the fountain, upstream and downstream flow data, or analytical data showing water chlorination byproducts downstream of the fountain. The City’s observations in this area do not support Exide’s assertion.
  - b. Page 1-39 of the revised APAR references studies of the biological communities within Stewart Creek. For example, the revised APAR states, “the biological community upstream of the former City of Frisco’s Stewart Creek Wastewater Treatment Plant ‘is representative of a stream with only limited periods of flow.’” That assertion is not accurate because:

- i. The channelized section of Stewart Creek within the Exide property is the area upstream of the former Stewart Creek Wastewater Treatment Plant. That portion of Stewart Creek was designed to drain quickly, which clearly reduces pooling and limits the stream's biological community.
  - ii. The biological community has been adversely affected by the longterm and persistent contamination of Stewart Creek by Exide.
- 2) In the revised APAR Exide asserts that the likely source of sulfate found in groundwater and in Stewart Creek surface water is naturally occurring. While it is well documented that the Eagle Ford Shale contains gypsum (calcium sulfate =  $\text{CaSO}_4$ ), Exide has not demonstrated that the identified sulfate concentrations are not primarily the result of Exide activities at the FOF.
  - a. The City believes it is reasonable to assume that a portion of the sulfate in groundwater and surface water originates from naturally occurring sources. However, even this assumption finds limited support in the revised APAR. For example, the three surface water sample locations where sulfate concentrations were identified are all located between Eagan Way/South 5<sup>th</sup> Street and the Burlington Northern Santa Fe (BNSF) railroad track. No background data or data points upstream of the FOF were included in the revised APAR. Such background data is essential in reaching any firm conclusion regarding the elevated sulfate levels.
  - b. As shown in Figure 1, the highest identified concentrations of sulfate on the Exide property occur within or adjacent to the former production area, such as the former slag treatment building and the crystallizer unit. An elevated concentration was also reported in MW-20 (adjacent to Eagan Way/South 5<sup>th</sup> Street). This data indicates that Exide operations have made a significant contribution to the elevated sulfate concentrations in groundwater in the vicinity of the FOF. A likely source of the elevated sulfate levels can be determined by reviewing Exide's Material Safety Data Sheet (MSDS), which was provided in the revised APAR. Sulfuric acid makes up 26-40% by weight of the industrial batteries processed at the FOF. Lead sulfate is identified as another component of industrial batteries. The revised APAR also documents sulfur dioxide air emissions from the FOF. Therefore, sulfate contamination of surface water and groundwater can be directly tied to Exide's activities at the FOF.

### **Arsenic Contamination**

The revised APAR repeatedly asserts that elevated arsenic concentrations in surface soil and sediment that do not occur with lead or cadmium contamination are the result of historical agricultural arsenic use and not due to Exide's activities at the FOF. The City agrees that some background level of arsenic in the general area is due to historic agricultural activities. However, the elevated arsenic levels found in Stewart Creek and the FOF area cannot be due only to historic agricultural activities. Exide's activities at the FOF are also a source of arsenic. The bases for this conclusion are:

- 1) Elevated arsenic concentrations are commonly co-located with elevated lead and cadmium concentrations. Where data exists, they are also co-located with elevated antimony concentrations. This alone demonstrates that arsenic is originating from the same source as the lead, cadmium, and antimony – Exide’s FOF.
- 2) Elevated arsenic concentrations in soil and sediment are to be expected in the soil and sediment in the area of Exide’s FOF just as arsenic has been found surrounding Exide’s Vernon, CA facility.
- 3) The revised APAR asserts that antimony and arsenic are not primary site contaminants because they represent only 0.4% and 0.01% by weight, respectively, of industrial batteries while lead represents 54 – 62%. This comparison is not relevant because of the total volume of industrial battery waste generated at the FOF while it was an active battery recycling facility (for over 40 years).

Arsenic is a COC at the FOF because elevated concentrations of arsenic have been identified in soil, sediment, slag, leachate, and groundwater at the FOF. As a COC it must be fully evaluated in the APAR.

### **Risk Assessment**

Two Screening Level Ecological Risk Assessments (SLERAs) were included in the revised APAR. One was prepared for upland (terrestrial) ecological receptors and the other for ecological receptors in Stewart Creek. The City believes these SLERAs have multiple problems in their present stages of development. They are certainly not complete at this point.

The Terrestrial SLERA modified the exposure calculations for armadillos in the Stewart Creek corridor because the 9.11 acre corridor area is slightly smaller than the armadillo’s reported 10 acre home range. Exide provides no scientific justification for this modification given the historic presence of armadillos throughout this area. The City is concerned that this modification improperly altered ecological PCLs.

The Stewart Creek SLERA states, “According to TCEQ (2014) the benthic invertebrate population in areas upstream and downstream of the FOP could be at risk from exposure to arsenic...” This is based on a benthic PCL of 21.4 mg/Kg for arsenic. The SLERA then discounts these exposures because, “it is probable that products containing arsenic were used in the area around the FOP and that the arsenic detected in the Stewart Creek sediments is sourced from agricultural products. Additionally, arsenic exceedances in sediment are not always co-located with lead and cadmium exceedances suggesting that the source of the arsenic is not associated with the source of the lead and cadmium.” Exide attempts to support this conclusion with statistics performed on analytical data from Stewart Creek samples collected from the J-Parcel, upstream of the FOF. Exide’s position is fundamentally flawed because, as previously discussed, Exide’s activities at the FOF were a source of arsenic that is now present at elevated levels in the Stewart Creek area.

The City also notes that the Upper Confidence Limit (UCL) and average of the upstream arsenic concentrations presented in the Stewart Creek SLERA appear to be skewed by one data point (an arsenic concentration of 42.7 mg/Kg in sample 2014-SED-035). The remainder of the

arsenic concentrations range from 8.55 to 20.3 mg/Kg. The APAR concludes that arsenic concentrations in other areas (such as the north side of Affected Property No. 5) are anomalous, but does not make the same conclusion regarding the arsenic concentration in 2014-SED-035. This value may be representative of an anthropomorphic background. It is also a statistical outlier. When removed from the upstream dataset, the data have a normal distribution. The 95% UCL calculated from the upstream data without the outlier is 15.11 mg/Kg instead of Exide's assumed 21.4 mg/kg PCL. This is a significant difference in determining the ecological risk from arsenic in Stewart Creek.

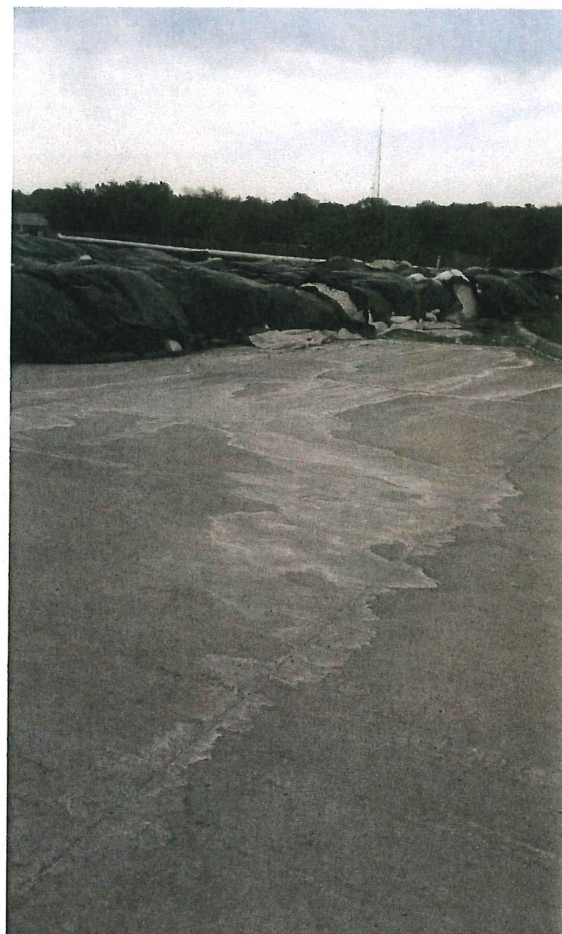
The City suggests that a better method for determining areas with arsenic impacts due to Exide's activities at the FOF is to collect background sediment samples from Stewart Creek upstream of Exide's property. Developing a robust background dataset is critical for determining the true ecological risk from arsenic in Stewart Creek.

The Stewart Creek SLERA cannot be completed without including the data generated during recent investigation/removal activities. The data now available demonstrates significant contamination of Stewart Creek sediment from Exide's activities at the FOF.

#### **Other Issues**

- 1) The revised APAR states that operations at the FOF began in 1966. The former Stewart Creek Wastewater Treatment Plant ("SCWWTP") was built in 1978 and started operations in 1979. Exide's on-site wastewater treatment plant was constructed in 1988. There is no explanation in the revised APAR regarding disposal of facility wastewater prior to 1979. Was it discharged directly into Stewart Creek?
- 2) A "white crystalline substance" is repeatedly documented as occurring with contaminated soil at the FOF. Page 1-17 of the revised APAR states, "The historical releases generally have been associated with exposed slag, battery case fragments, or other process waste materials (e.g., white crystalline precipitate material identified on the exterior side of the Flood Wall during EPA and TCEQ site inspections)." It appears that the white crystalline substance or a similar material is leaking from supersacks containing waste materials from the deconstruction/demolition of the former processing area.





*Photographs taken of supersacks at former Exide facility during April 17, 2014 site visit.  
Note the white staining along flowpaths from the supersack storage area.*

Discharge and remediation of this material must be addressed in the revised APAR since it is currently present at the FOF.

- 3) The "Response Action and Recommendations" section of the revised APAR Executive Summary indicates that one of the response actions at the FOF will be repair or upgrades of the closed waste management caps. Surface soil samples collected from the caps document that they are extensively contaminated with lead and/or cadmium. The caps have, therefore, become part of the closed waste management areas and must be addressed as such during RCRA closure.
- 4) The revised APAR asserts several times that, other than documented incidents of treatment failure, no hazardous waste was disposed of at the FOF. However, available site documentation indicates otherwise. An engineering design sheet for the floodwall was submitted to TCEQ as part of the facility's 2010 RCRA Permit renewal application. The Lake Engineering & Development Inc. Sheet is dated 15 December 1987. The notes on the sheet state:

- a. "Overexcavate wall footing to Elev. = 626.00' through existing slag material from points 'A' to 'B' and other locations 1'-0" or 2'-0" below bottom of footing as shown.
- b. Move slag materials to dumpsite on plant property north of R.R. Tracks."

The notes do not state that the probable hazardous slag was treated in any manner prior to its unpermitted on-site disposal. The revised APAR must address historic unpermitted on-site disposal of hazardous waste.

- 5) Page 1-24 of the revised APAR refers to "Slag in Lower Fill Material at Battery Receiving Building, pre-RCRA" as an active waste management unit on the facility's notice of registration (NOR). This is apparently in response to the TCEQ's comment on the original APAR that "the lower fill zone containing slag and battery chips should be identified as a waste disposal unit on the facility's notice of registration..." The City believes that TCEQ comment #12 was not limited to slag under the Battery Receiving Building. Rather, it includes slag reported in other areas, such as at MW-30. Figure 3A, "Thickness of Fill Zones in Which Slag Was Observed" does not depict the thickness of fill zones in which slag was observed. For example, approximately 29 feet of fill material, which included some slag near the bottom of the fill, was observed in MW-30. But Figure 3A lists a fill thickness of 0.5 feet. All on-site slag and battery chip fill areas must be accurately identified and addressed in the revised APAR.
- 6) The revised APAR states that the contact stormwater is "hard-piped" from the Class 2 Landfill to the solar evaporation pond. Previous Exide submittals have indicated that flexible hoses are used. This issue must be clarified in the revised APAR.
- 7) The revised APAR indicates that a new French Drain monitoring plan has been developed, but a copy of the plan is not included. Given the critical function of the French Drain in reducing contamination of Stewart Creek from contaminated groundwater under the FOF, a copy of the new plan must be included in the revised APAR for TCEQ review.
- 8) Page 3-20 of the revised APAR indicates that in the former blast furnace area "the smelter building gallery basement was observed to have been filled with gravel." Was this clean fill or contaminated material from the FOF?
- 9) Page 4-4 of the revised APAR contains an incorrect statement regarding the routing of the northern tributary. It was not in its current location until the early 1990s.