TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 5, 2015

CERTIFIED MAIL

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Mr. Matt Love, Director
Global Environmental Remediation
Exide Technologies
P.O. Box 14294
Reading, PA 19612-4294

Re: Comments to the Affected Property Assessment Report (APAR) for the Former Operating Plant, dated May 22, 2014
Exide Frisco Recycling Facility, 7471 5th St. Frisco, TX 75034-5047
TCEQ SWR No. 30516, TCEQ Hazardous Waste Permit No. HW-50206; TCEQ Agreed Order Docket No. 2011-1712-IHW-E ; EPA ID No. TXD006451090; Customer No. CN600129779; Regulated Entity No. RN100218643

Dear Mr. Love:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced submittal. Based on our review, since a complete delineation of the extent of contamination at some solid waste management units on-site and on downstream portions of Stewart Creek, the TCEQ that cannot concur that the investigation has been completed in accordance with 30 Texas Administrative Code (TAC) §350.51. The full extent of contamination has not been determined on-site. Regarding off-site Stewart Creek investigations, a report entitled *Interim Action Report Slag and Battery Case Fragment Removal and Disposal*, dated August 2014 detailing interim removal actions for slag and battery chips and levels of contamination in soils and sediments in Stewart Creek was received subsequent to the APAR and will be reviewed separately. A list of comments to the APAR is enclosed. TCEQ also took into account the August 29, 2014, City of Frisco's comments. Please prepare a written response to each comment, referencing the assigned TCEQ comment number. An original and one copy of the written response to these comments must be submitted to the TCEQ Remediation Division at the letterhead address using mail code number MC-127. An additional copy should be submitted to the TCEQ Region 4 Office in Dallas/Ft. Worth. *Your response must be received within 60 days from the date of this letter.* Please note that the Remediation Division sends letters via email when appropriate. Therefore, current email addresses and the site identification information in the reference block should be included in all future submittals.

Even though it is acknowledged that delineation is not 100% complete in all areas of the Site for all metals, based on the amount of information collected for the site to date, there is sufficient data to prepare a conceptual RAP for the on-site portion of the facility which discusses and

evaluates potential remedial alternatives to address all contaminated media. A Response Action Plan (RAP) is required to be submitted in accordance with 30 TAC §350.94 for review and approval. Please submit a RAP within 120 days of the date of this letter. Along with the RAP, please submit a supplement to this APAR within 120 days of this letter which fully describes the vertical and lateral extent of contamination in those areas which have not been fully delineated, some of which are denoted as Possible Affected Properties on Figure 1.B.1., others discussed in the narratives regarding individual units.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the Final Report. Please call me at (512) 239-2361 if you need additional information or wish to discuss these comments or the due date.

Sincerely,

Gary Beyer, Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

GB/mdh

Enclosure

cc: Mr. James Gradney, Enforcement Coordinator, TCEQ Office of Compliance and Enforcement, MC-224

Mr. Sam Barrett, Waste Manager, TCEQ Region 4 Office, Dallas/Ft. Worth

Mr. Bill Shafford, Technical Specialist, Office of Waste, TCEQ

Comments to the Affected Property Assessment Report for the Former Operating Plant

1. Page xviii, Conclusions and Recommendations – In the Groundwater section, it states, "This recommendation includes **annual** monitoring of groundwater in the vicinity of the Class 2 Landfill in accordance with the previously submitted Class 2 Landfill Groundwater Monitoring Plan (PBW, 2013a) which was approved on April 4, 2014. It should be noted that quarterly monitoring is required by the plan for a short list of constituents of concern (COCs) with reports submitted semiannually. A larger list of COCs is required by the plan for annual sampling.

2. Section 1.2.5 – Affected Property Description, Page 1-30 - Regarding the argument that "...in almost all cases, wherever one of these metals (arsenic, antimony and selenium) was present in exceedance of the RALs, lead was also present in exceedance of the RAL at the same location." The two exceptions were for antimony located in the shooting range/south berm area and areas of isolated arsenic contamination. Regarding antimony located in the shooting range/south berm area, antimony is used in the manufacture of lead bullets to increase hardness as well as being used in battery production and is therefore not considered anomalous.

   There are several explanations for the isolated occurrences of arsenic. Since arsenic is more mobile in the relatively alkaline conditions found in soils surrounding Exide, whereas lead is less mobile in alkaline soil conditions arsenic may have preferentially leached from areas where it originally coexisted with lead contamination. Also, arsenic contamination has probably been derived from stack emissions (as noted during the remediation of the Exide Vernon, CA facility) and was aerially deposited onto soils. Arsenic could also be the result of cotton farming, or some combination of all the above. Regardless, since arsenic from these various sources cannot be differentiated, isolated occurrences of arsenic must be carried forward as a COC and any areas above the critical PCLs or background must be remediated.

3. Section 2.5 – Groundwater Resource Classification, Page 2-4– The TCEQ accepts that the classification of groundwater at the site is Class 2 since evidence demonstrating a change to Class 3 was not presented in the APAR.

4. Section 3.2.3-Flood Wall, Structural Sub-base and Perched Water Assessment Strategy, Page 3-12 thru 14- In this section, documentation is provided to describe the existence of a perched water zone and that any contamination in water derived from this zone does not represent contaminated groundwater from the Upper Ground Water Bearing Unit (Upper GWBU). We agree that the proposed perched zone represents a preferred permeability pathway, but may not be hydraulically isolated from the GWBU in all areas of the site. Therefore, the TCEQ considers the proposed perched zone to be part of the overall Upper GWBU. Even if it could be demonstrated that the perched zone is hydraulically separated from the Upper GWBU, the water in the proposed perched zone is contaminated and has been demonstrated to release contaminants to Stewart Creek. This contaminated water represents a completed exposure pathway and is subject to corrective action to prevent continued releases to Stewart Creek.

   This section also discusses various problems encountered with the operation and maintenance of the French Drain System. Please provide us with a copy of the French Drain Operation and Maintenance Plan described in this section. As previously requested as Comment 34 in our October 8, 2013 letter, information should be presented on the

performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence leakage along the flood wall and into Stewart Creek, the presence or absence of white crystalline substance and sample results, and **a determination as to whether ongoing discharges to Stewart Creek are continuing to occur**. This information was not presented in the May 2014 APAR. We will require quarterly reports on the operation of the French Drain system since it is critical to prevent ongoing releases of contaminated groundwater to Stewart Creek. **Please provide the first of these reports which evaluate the performance of this interim corrective measure within 90 days of the date of this letter.** Please provide the information requested in our October 8, 2013 letter. Information provided in these reports is necessary for the development of the requested RAP to insure that any continuing releases to surface water will be eliminated. Evaluations of various corrective actions (slurry walls, capping, expansion of the French drain system, etc.) should be presented in the requested RAP.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed, including any waste managed in the French Drain, super sacks or other waste piles, in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance.

5. Section 3.2.7.3, Use of Slag as Fill Material, Page 3-22– While we agree that fill containing slag was deposited at depth prior to RCRA regulation (July 26, 1982), shallow contamination exists at many sites which was deposited during recycling activities after the RCRA rules were enacted. Also, any contaminated slag and soil which was removed and re-deposited on-site after RCRA rules were implemented would be considered RCRA hazardous. This relatively shallow contamination would have to be removed from the site in order for the cleanup to proceed under 30 TAC §335.167, Corrective Action for Solid Waste Management Units, unless remediation incorporating this area according to EPA guidance document EPA530-F-98-026, Management of Remediation Waste Under RCRA, is approved (i.e. Corrective Action Management Unit (CAMU), etc.) Also, the thickness of fill material as depicted in Figure 3A does not incorporate the presence of fill containing slag documented in MW-30 at an approximate depth of 29 feet.

6. Section 3.2.8.1. and Sections 4.2.6 thru 4.2.9, Page 3-24– All four caps at the Class 2 Landfill, Slag Landfill, South Disposal Area, and North Disposal appear to be in fair condition, except for some minor ponding in the Slag Landfill as noted on page 4-21 and North Disposal Area as documented in Photo 4 of Exhibit B of Appendix 11. Provide plans in the requested RAP for removal and proper disposal of surface contamination located on top of the caps. As part of the requested RAP, please provide plans for upgrading the existing caps to provide adequate drainage and prevent vertical migration of rain water into the underlying waste. As noted in the previous comment, any contamination existing on top of the caps must be removed or incorporated into a CAMU.

7. Section 4.2, Nature and Extent of COCs and NAPL in Soil, Page 4-2– In the second bullet at the bottom of the page, the concentrations for arsenic in soil in several locations exceeded the RAL (15.9 mg/kg). These exceedances are explained as being "within the expected range of background concentrations for agricultural use based on published documents (Bureau of Economic Geology, 2005)." The TCEQ prefers to rely on site specific background studies to determine both naturally and anthropogenic background levels. While it is probable that cotton farming was conducted in the area and some of the arsenic present is due to the use of arsenic for herbicides and pesticides (calcium arsenate, sodium arsenite, and arsenic acid), it is also true that arsenic was generated by industrial activities conducted at the FOP. This arsenic generated by the industrial activities (stack emissions, slag leaching, etc.) has been deposited onto soils, adding to any pre-existing agriculturally sourced arsenic, contributing to the overall toxicity values. Since the land downstream from the FOP is anticipated for use as parkland and presumably fishing and contact recreation, any arsenic exceeding critical human health and ecological PCLs must be addressed by some form of corrective action.
8. Section 4.2.2 – Raw Materials Storage Building, Page 4-7– See the discussion presented above regarding the necessity of remediation of the perched water zone.
9. Section 4.2.3 – Slag Treatment Building, Page 4-8– The RAL for benzene was exceeded in sample 2013-STB-6. Please determine the full extent of benzene contamination at this location.
10. Section 4.2.3 – Slag Treatment Building, Page 4-9– A discussion is presented regarding the timing of the deposition of the subsurface slag in fill at depth. We agree that the fill at depth can be considered to be pre-RCRA (July 26, 1982). However, shallow contamination documented in soils in the FOP area resulting from recycling/smelting activities since 1982 would be considered to be in violation of RCRA (see comment above regarding Use of Slag as Fill Material). In this section it states that the vertical delineation of lead in this area (Slag Treatment Building) was completed to the RAL at a depth of 4 feet. However, just east of the Slag Treatment Building, boring 2013-FWFS-5B had a lead level of 10,200 mg/kg at 5-6 ft below ground surface (bgs). Please determine the vertical extent of contamination in this area.
11. Section 4.2.4.2 – Flood Wall Creek Side, Page 4-11 - In our letter entitled Conditional Approval of Response to TCEQ and EPA Comments on Affected Property Assessment Report, dated November 19, 2013, we refer you to Comment No. 6 regarding Specific Comment No. 15, Stewart Creek Floodwall, the TCEQ stated "Concerning the white crystalline substance, please include these areas as part of a PCLE zone to be carried forward for corrective action." The Log of Borings No. 2012 –FWCS-5, 6, and 7 taken from a depth of 0-2 feet documents the presence of a white crystalline substance on the surface of the borings, but the sample was probably homogenized, diluting the concentration of the white crystalline substance in the original APAR. Only two additional samples (SCC-6 and 2013-FWFS-5A) were taken in 2013 to document the continued existence or level in the white crystalline substance in this area, which was excluded from the PCLE zone as an area not needing remediation. This is the area originally documented as having a release by the EPA during their original inspection. Additional samples will be required in the Flood Wall Creek Side area, focusing on determining (1. The existence of the white crystalline substance and level of contamination of the undiluted substance in or near the original documentation (2012 –FWCS-5, 6, and 7) and any new areas where the white crystalline substance is

present, and; (2. undiluted soil samples from a shallow depth (0-6 inches) and level of contamination in that soil, and (3. Any other evidence of continued discharges to Stewart Creek.

12. Section 4.2.6 – North Disposal Area, Page 4-17 – There does not appear to be many samples to determine the configuration of the North Disposal Area boundary between 2012-NDA-4 and 2012-NDA-6 and in the area surrounding ECO-11. Please install more borings to more accurately define this boundary.

13. Section 4.2.9 – Class II Landfill, Page 4-22 – Please install an additional boring to the west of boring 2014-CL2-06A to determine the extent of contamination at the western boundary of Affected Property No. 5.

14. Section 4.2.15 – Potential Ecological Habitat Areas, Page 4-33 – Vertical and lateral delineation of metals in the vicinity of EC-11C should be conducted. The area around EC-11C should probably be considered a separate area and not part of Affected Property No. 1. Arsenic was not delineated as part of Affected Property No. 1. Please include a complete delineation of arsenic as part of Affected Property No. 1.

15. Section 4.2.12 – South Disposal Areas, Pages 4-27 thru 30 – Please determine the full vertical and horizontal extent of contamination in this area. Please address any surface contamination existing on the top of the soil cap in the RAP as well as any modifications required to the cap construction and configuration.

16. Section 4.2.13 – Crystallization Unit Frac Tank, Page 4-31 – This unit is currently considered an active unit. Exide proposes to conduct further investigation of the unit during closure and demolition. Samples adjacent to the Crystallization Unit do not appear to be problematic, but the deepest samples are 2 feet and sampled primarily for cadmium and lead. We agree that a more extensive investigation will be needed during decommissioning and closure. The area known as Crystallizer Way requires additional vertical delineation in the vicinity of soil sample 2014-SDA-16. Please provide a discussion of the potential sources of contamination in this area.

17. Section 5.1 - Derivation of Assessment Levels, Page 5-2 - The third paragraph describes monitoring wells exhibiting exceedances of the lead ^{SW}SW PCL as including MW-46 and MW-14. Consulting Tables 5B.1 and 5B.4A, these exceedances are not verified for MW-14. This paragraph also describes exceedances of the cadmium SW REBEL in MW-26, MW-27, MW-29, and MW-46. Consulting Tables 5B.1 and 5B.4A, these exceedances are not verified for MW-26, MW-27, and MW-29. Please clarify.

18. Section 5.2 – Nature and Extent of COCs in Groundwater, Page 5-4– Regarding the presence of selenium in monitoring well LMW-9, the argument is made for the existence of selenium in groundwater sourcing from naturally occurring selenium in soils. No background level for selenium in soils was presented in the original July 19, 2013 APAR. A survey of soil samples near the Class 2 Landfill indicates that the soil samples gathered in the area surrounding the Class 2 Landfill (2013-C2L-01 thru 10 series) are relatively low in selenium (non-detect or J-flagged) unless co-located with soils having elevated lead levels, indicating that the selenium in groundwater from this area is derived from contamination, not naturally occurring. A background level for selenium in groundwater adjacent to the Class 2 Landfill has not been established. Either a background level for selenium in groundwater must be established which indicates that the elevated levels of selenium noted in groundwater from monitoring well LMW-9 are naturally occurring, or the selenium must be

treated as groundwater contamination subject to corrective action (plume management zone, etc.).

19. Section 5.2 - Nature and Extent of COCs in Groundwater, Page 5-5 thru 5-7 – As previously discussed above, regardless whether the fill zone is considered hydraulically connected to the underlying GWBU, it represents a completed exposure pathway and additional information provided in the requested reports documenting the performance of the French Drain can be used to evaluate the efficiency of the system in capturing all the contaminated water residing in the ephemerally saturated perched zone. It is important for the development of the RAP in regards to eliminating this exposure pathway to have gathered enough information to determine an appropriate and effective corrective action response (French drain, cap, slurry wall, etc.).
20. Section 6.3 – Nature and Extent of COCs in Surface Water, Page 6-3 - Elevated concentrations of sulfate in Stewart Creek surface water (123 mg/L and 127 mg/L) above the maximum annual average criterion of 60 mg/L (Lake Lewisville) have been attributed (by Exide) to naturally occurring concentrations in the Eagle Ford Shale that outcrops at the base of the creek in the area of the site (Section 6.3). Also, historical maximum sulfate concentrations were detected at 320 mg/L, 95 mg/L, and 180 mg/L in other nearby streams. Were these sulfate concentrations measured in the other non-Stewart Creek stream segments maximum annual average concentrations, or maximum concentrations?
21. Section 6.4 – Critical PCL for Surface Water, Page 6-3, – The first sentence incorrectly states "The ecological PCLs derived for all surface water COCs (i.e., lead, arsenic, and cadmium) were lower than the human health PCLs for those COCs (see Tables 6B. 1 and 6B.2), and are therefore the critical PCLs." An examination of Table 6B.2 reveals that the Human Health Contact Recreation PCL for arsenic, namely 0.0285 mg/l, is the critical PCL.
22. Section 7.2 – Sediment Risk Based Exposure Levels, Page 7-2– The last statement on this page reads "The concentrations of arsenic identified in the sediment sampling are within a reasonable range of the published background information. Consequently, arsenic is not considered to be related to activities at the FOP, and arsenic detections are not discussed in the following sections." See our response to Comments 2 and 6 above. The most downstream sample (2014-SED-050) demonstrated an arsenic concentration of 29.6 mg/kg, greater than the TRRP Critical PCL (TRRP Ecological PCL for sediment, midpoint of benchmark and SEL) of 21.4 mg/kg. Please determine the lateral extent of arsenic contamination downstream from sample 2014-SED-050.

SLERA Comments

1. The SLERA focused on Stewart Creek and the North tributary. It included evaluations of chemicals of concern (COCs) in surface water, sediment, and groundwater and exposures to benthic invertebrates, aquatic life, fish, and wildlife. It also included an evaluation of the potential presence of protected species. The TCEQ concurs with the conclusions that there is likely no adverse risk to aquatic life, fish, and wildlife, and that no protected species are expected to occur in Stewart Creek.
2. Regarding the benthic invertebrate community in Stewart Creek; Exide states that arsenic detected in media is not part of the former operating plant's process and is derived from agricultural practices (cotton farming) from surrounding land. In addition, Exide maintains that elevated arsenic concentrations in sediment are not co-located with elevated lead and cadmium concentrations, suggesting that the origination sources are

not the same. If the elevated concentrations of arsenic in Stewart Creek sediment were derived from the historic agricultural uses in the area, then elevated concentrations should also be seen in area soils. In a recent Affected Property Assessment Report (Cook-Joyce, 2014) for the ~26-acre Partial Response Action Area 1 (PRAA 1) within the Grand Park property, a focused investigation of the surface soils was conducted to assess the presence of chemicals of concern. PRAA 1 is currently a wheat field that has been used for farming and ranching since the 1940s. Of the 258 total surface soil samples collected at PRAA 1, only 3 samples were above the TCEQ plant benchmark of 18 mg/Kg arsenic and the vast majority of these samples were below the Exide site-background soil concentration of 15.9 mg/Kg. A 95% UCL value of 10.3 mg/Kg arsenic was also calculated from the initial 236 samples (Cook-Joyce, 2014). This study suggests that elevated arsenic concentrations in soil may not be associated with land known to be used for agricultural purposes and that area soils transported into Stewart Creek may not serve as a source medium. However, additional studies are needed to determine the arsenic source(s). To better assess the potential source of the elevated downstream concentrations, it is suggested that a more definitive upstream (of the former operating plant) sampling of Stewart Creek sediment be conducted. To date, only 10 upstream samples have been collected and only 1 of these exceeded the ecological protective concentration level of 21.4 mg/Kg arsenic. In addition, sediment arsenic data is lacking for tributaries to Stewart Creek. If these tributaries were to be sampled and if it was determined that they also contain elevated arsenic concentrations, it could be more compelling evidence that the source is agricultural-related. Regardless, since, according to previous comments for the non-SLERA portion of the APAR, arsenic is considered a site COC, sediment concentrations that exceed the benthic PCL of 21.4 mg/kg will need to be addressed.

3. There remain some data gaps that should be discussed in the SLERA portion of the Revised APAR. These include: 1) no arsenic data for surface water or sediment from the on-site portions of Stewart Creek and the North Tributary, 2) no significant selenium data for surface water or sediment from any of the exposure areas, and 3) no antimony data for Stewart Creek or the North Tributary (this was a COC for the on-site Terrestrial Evaluation SLERA).

4. Regarding off-site Stewart Creek investigations, a report entitled *Interim Action Report Slag and Battery Case Fragment Removal and Disposal*, dated August 2014 detailing interim removal actions for slag and battery chips and levels of contamination in soils and sediments in Stewart Creek was received subsequent to the APAR and will be reviewed separately.