UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

September 12, 2013

VCP-CA Section, Team 1
Attn: Gary Beyer, MC 127
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Comments on Exide Technologies' Affected Property Assessment Report
EPA ID NO. TXD006451090 / DOCKET NO. RCRA-06-2012-0966

Dear Mr. Beyer:

Please find enclosed the U.S. Environmental Protection Agency's (EPA's) comments on the Affected Property Assessment Report (APAR), submitted by Exide Technologies (Exide) on July 10, 2013, pursuant to the Administrative Order on Consent (AOC) issued under Section 3013(a) of the Resource Conservation and Recovery Act.

Based on the EPA's review, the current APAR does not meet the objectives of the AOC; therefore, EPA will require Exide to submit a revised APAR. As discussed, TCEQ will formerly respond to Exide sharing our unified (EPA's and TCEQ's) concerns/comments regarding the content of the APAR. Please copy me on that correspondence at:

H. Troy Stuckey, Ph.D., Chief
RCRA Corrective Action and Compliance Inspection Section
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733
ATTN: Paul James / 6EN-HC

Please feel free to call or email any questions to Paul James of my staff at (214) 665-6445, or james.paul@epa.gov.

Sincerely,

H. Troy Stuckey, Ph.D., Chief
Corrective Action and
Compliance Inspection Section

Enclosures

cc: Sam Barrett - sam.barrett@tceq.texas.gov
Bill Shafford - bill.shafford@tceq.texas.gov

U.S. E.P.A.'s comments concerning Exide Technologies; July 10, 2013 APAR:

1. General comment: Please include a list of definitions for all the acronyms and abbreviations used in the APAR.

2. General comment: Please check all referenced T.A.C.s. - e.g. Table 1C, page 16 of 22 references 351.51(d)(1) which does not exist.

3. General comment: The APAR indicates that during a previous investigation, it was determined that soil was excavated from the Lake parcel for use in constructing the clay liner in the class 2 landfill. (1) Please provide records showing accurate locations, areas and depths of the former pits (2) After use, what fill material was placed back into the borrow pits? (3) Please provide all analytical/lithological data demonstrating the size and contents of the pits.

4. Page 3. Cover Letter: Title and date are missing as defined on page 7-8 of the AOC. Please note, for purposes of the Order, the EPA recognizes as duly authorized representatives of Respondent, the person holding the title of "Plant Manager" of the Facility and the person holding the title of "Vice President, Global Environment, Health and Safety" for Respondent. Does Ms. Coleman hold one of these titles? Note: The facility must notify the EPA when a representative defined in the order has been reassigned.

5. Page iv. Cover Page: The APAR provided the wrong Latitude and Longitude for the facility. The listed coordinates are for the City of Frisco WWTP VCP site. Also the longitude must be a negative value, since the facility is west of the Prime Meridian.

6. Page vi. Executive Summary: It is stated in the APAR that there are no actual or probable exposures on-site and off-site in all media. Yet there are COC exceedances in the soil, and slag that exceeds TCLP has been identified in the creek sediments. These areas have to be further evaluated and addressed under the APAR.

7. Page vi. Executive Summary: "Hot spots" have been identified downstream in previous and ongoing studies. Since these hot spots are likely the result of off-site migration and are considered off-site affected property, the APAR needs to address these areas.

8. Page vi. Executive Summary: The EPA does not concur that the information provided in the APAR demonstrates that the groundwater bearing unit (GWBU) at the facility is Class 3 (see comment #25 for details).

9. Page xii. Conclusions - Response Actions and Recommendations: As defined in the APAR instructions, describe response actions completed or underway. Since the French drain was a response to diminish the contaminated water discharging from the facility into Stewart Creek, please add a brief narrative on its current and future operations and its effectiveness.

10. Page xii. Conclusions - Response Actions and Recommendations: As defined in the APAR instructions, specify if a Remedy Standard A or Remedy Standard B is planned, if known.

11. Page 1-2. Section 1.2 - Affected Property and Sources of Release: Please add (1) the history of all known releases; (2) the history/problems/concerns of both channelized creeks; and (3) the history/problems/concerns of the fill material used under the facility and the old creek channels. Please note fill material may be sources of contamination and/or potential pathways (e.g base

material has a greater K values than the in-situ clay soils, therefore the French drain was installed within the base material to try to stop the contamination from entering Stewart Creek).

12. Page 1-2. Section 1.2.1 - History and Operations: As defined in the APAR instructions, under Section 1.2.1 - History and Operations, please add a narrative describing *"...planned future operations..."*

13. Page 1-2. Section 1.2.1 - History and Operations: As defined in the APAR instructions, under Section 1.2.1 - History and Operations, *"...for each different use of the property, include a description of the type of business or facility and associated NAICS codes..."* Please provide NAICS codes for the facility's current and past operations.

14. Page 1-3. Section 1.2.1 - History and Operations: *"Process wastewater previously generated at the Site was treated in the on-site wastewater treatment facility and then discharged to the North Texas Municipal Water District sanitary sewer."* During the history and operation of the facility, was this always the case? If not, please include historical information on past operations and determine if more investigation is required.

15. Page 1-3. Section 1.2.1 - History and Operations: *"Storm water control features within the former production area include a concrete slab cover, a retention wall/flood wall, and a French drain system that route storm water to the storm water retention pond located south of Stewart Creek via a conduit passing over the creek."* During the history and operation of the facility, was this always the case? If not, please include historical information on past operations and determine if more investigation is required.

16. Page 1-4. Section 1.2.3 - Previous Investigations: Under "Groundwater Investigation, Frisco, Texas Plant, Dames and Moore, 1983," it states, *"The study concluded that groundwater was flowing toward and discharging into Stewart Creek and its tributaries at a low flow rate (e.g., $3.1x10^{-5}$ to $1.0x10^{-8}$ cm/sec)."* Are these values in the parenthesis examples of low flow rates, calculated flow rates, or actual measurements of flow rates?

17. Page 1-4. Section 1.2.3 - Previous Investigations: Under "Stream Sediment Test; GNB, Inc. Plant, Southwestern Laboratories, 1986d," it states, *"The final sediment sampling event data (SWL, 1986d) indicated that sediments in the cleanup area were below the cleanup standards of 5.0 mg/L for lead EP Toxicity and 1.0 mg/L for cadmium EP Toxicity."* Please note "EP" was not defined in the APAR, and that this standard is an older method that does not meet the current requirements.

18. Page 1-6. Section 1.2.3 - Previous Investigations: Under "Notification of On-site Class 2 Industrial Waste Landfill, RMT/Jones & Neuse, Inc., 1995 (RMT/JN, 1995)," it states, *"Slug tests were performed in four wells and a pumping test was performed in LMW-17."* Do the data from these tests support PBW's Class 3 designation? See comment #25 for further details.

19. Page 1-7. Section 1.2.3 - Previous Investigations: Slag "buttons" and lead "buttons" have been used in various places in the APAR but have not been defined. Define slag and lead "buttons" and are they considered to be hazardous waste?

20. Page 1-10. Section 1.2.4.1 - Potential Sources of Release Identified in the Phase I RFI: Under 6. Stewart Creek, it states, *"Stewart Creek is an on-site stream that runs along the south side of the*

former production area". The EPA does not accept that Stewart Creek is an "*on-site stream*", yet a creek that is approximately eight miles long runs through the facility along with residential, agricultural, wetlands, woodlands areas, etc. and flows into Lake Lewisville. Please verify and amend.

21. Page 1-12. Section 1.2.4.2 - Potential Sources Identified in the 2011 Sampling and Analysis Work Plan: Under 4. Stewart Creek Flood Wall, it stated the following, "*During a TCEQ inspection of the Site in May-June 2011, the TCEQ noted seepage along the Stewart Creek flood wall near the Slag Treatment Building and where the storm water conduit exits the flood wall near the Battery Receiving/ Storage Building... Following the TCEQ inspection, a French drain system was installed along the facility side of the flood wall to route water away from the flood wall (see Appendix 19)*". Based on Appendix 19, the wall is defined as a retaining wall, designed to retain and collect storm water and other water generated from the facility. In most occurrences, flood walls are designed to keep flood water out and retaining walls are to keep flood water in. To be consistent and factual, verify if the wall is a retaining wall or a flood wall, and make changes throughout the APAR.

22. Page 1-16. Section 1.2.5.3 - Affected Property No. 3 (South Area): In the area associated with the Crystallization Unit, a soil sample (2013-CUFT-7) exceeded RAL. Based on this sample, the contamination in the area was not fully delineated as required in the order and in the requirements of a completed APAR. Please verify and delineate further.

23. Page 1-18. Section 1.3.3 - Surface Water Hydrology: The APAR states "Urban runoff is the primary source of water in Stewart Creek ..." What is the purpose of this statement? Please provide the hydrological data/reference(s) to support the statement. Please note the creek has been a part of the landscape for many decades/centuries before the facility and the recent land development within its watershed. One could argue that the primary source of water in Stewart Creek comes from the overburden GWBU (as described on site), since the creek still flows with the urban concrete culverts/channels being dry.

24. Figure 1B – Affected Property Map: The North and South Disposal Areas' boundaries are demarcated on the map with a dashed black line. Adjacent to the lines are disposal area delineation boring locations (e.g. "NL-..", "NB-..", "SL-.."). Were these borings used to delineate the boundaries by using analytical and/or lithological methods? Please include all analytical data and lithological descriptions for each disposal area delineation boring.

25. Page 2-3. Section 2.5 - Groundwater Resource Classification: In a memorandum dated November 29, 2012, PBW summarized their groundwater classification assessment activities for the Exide Frisco site, where they found the uppermost GWBU to be a Class 3 groundwater resource. This memo was submitted to and discussed with TCEQ and EPA representatives in a meeting on December 7, 2012. TCEQ later concurred with PBW's Class 3 designation as documented in an Interoffice Memorandum in 2013. PBW has now prepared an *Updated Groundwater Resources Classification Evaluation* provided as Appendix 7 of the July 9, 2013 APAR for the Exide Operating Plant. The update is based on information obtained subsequent to their initial groundwater classification effort in 2012. The updated review concluded for the second time the uppermost GWBU at the site is a Class 3 groundwater resource.

    The EPA has reviewed the updated information provided by PBW in Appendix 7 and has the following comments:

The importance of accurately classifying the groundwater at the Exide site (using the TCEQ regulatory guidance on Groundwater Classification RG-366/TRRP-8, 3/2010) is that it could significantly impact the required cleanup levels for contaminated soils. If the groundwater is found to be a Class 2 resource (i.e., potential drinking water aquifer), then the cleanup level for lead in soils greater than 5 feet deep would be 274.51 mg/kg. If the groundwater is determined to be a Class 3 resource (i.e., non-potable uses), then the cleanup level increases by a factor of 100x and would be 27,451 mg/kg.

The EPA's overall conclusion from this review is that a portion of the GWBU (i.e., Gravels and Sands unit) at the Exide site exhibits Class 2 groundwater resource characteristics: water quality (TDS ≤ 10,000 mg/l), hydraulic conductivity (≥ $1x10^{-5}$ cm/sec) and groundwater yield (≥ 150 gpd). This conclusion is based on the data provided by PBW in their Updated Groundwater Classification Evaluation, consisting of a description of site geology, soil boring logs, geologic cross-sections, and aquifer data (slug tests and pumping tests). Under TRRP, if a GWBU meets the criteria for more than one groundwater classification, then the GWBU shall be assigned the higher quality classification (§350.52).

PBW largely calculated aquifer yields (gpd) at the site using hydraulic conductivity values from slug tests and the saturated thickness of the GWBU (per TRRP-8; Section 2.7.1 Method 1). Because aquifer classification is a significant driver of soil cleanup levels at the site, the EPA suggests conducting additional pump tests within the various GWBUs to determine conclusively whether or not the transmissive zones at the site can sustainably produce 150 gpd.

According to information in the revised Groundwater Classification Evaluation, the uppermost groundwater bearing unit at the Exide site consists of colluvium/alluvial sediments subdivided into three primary geologic units which are underlain by the Eagle Ford Shale and Austin Chalk. They are:

a) Clay or Non-Gravel unit – This unit is described as stiff high plasticity clay with minor amounts of calcareous nodules or gravel. Most of the site borings with this lithology are located south and east of the former operating plant. Six slug tests were conducted in this unit, with hydraulic conductivities (k) ranging between $6.1x10^{-4}$ to $2.8x10^{-8}$ cm/sec, with a geometric mean of $3.3x10^{-6}$ cm/sec. Under TRRP, with an average K ≤$1x10^{-5}$, this unit would not be considered to be a groundwater bearing zone; rather it would be deemed a saturated soil. The saturated thickness for this unit was calculated as the vertical distance between the static water level and the base of the saturated unit (contact between the clay and Eagle Ford Shale). Groundwater yields estimated from these tests were generally much less than 150 gpd, with the exception of MW-17 where the yield was estimated at 565 gpd. The slug test results were highly variable due to the amount of gravel or calcareous nodules present in a given boring, suggesting that this unit may not be as uniform across the site as described.

b) Clayey Gravel and Sands unit – This unit is described as lenses of clayey gravel and sands embedded within a dense clay matrix. The thickness of the clayey gravel and sands unit ranged from 0.5 feet to 5 feet with an average thickness of around 2 feet. This unit was identified in borings more often in the northwestern and western portion of the former operating plant. Six slug tests were conducted in this unit, with hydraulic conductivities ranging between $3.4x10^{-2}$ to $4.5x10^{-4}$ cm/sec, with a geometric mean of $1.7x10^{-3}$ cm/sec. The saturated thickness for this unit was calculated by PBW to be the thickness of the lens or more permeable gravel or sand containing zone (average 2 feet), excluding any saturated zones above or below. Calculated groundwater yields from slug tests for the Clayey Gravel and Sand unit ranged from 12 gpd to 4,975 gpd. The EPA suggests that the saturated thickness for wells completed in this unit be the vertical distance between the static water level and the base of the saturated unit.

c) Gravels and Sands unit – This unit is described as relatively "clean" unconsolidated gravels and sands. Clayey gravels and sands described in the field as loose were also included by PBW in this geologic unit. The thickness of the Gravels and Sands unit ranged between 0.5 feet to 5.2 feet, with an average thickness of around 2 feet. Two slug tests and two pumping tests were conducted in this unit, with hydraulic conductivities ranging between $1.2x10^{-1}$ to $5.7x10^{-3}$ cm/sec, with a geometric mean of $2x10^{-2}$ cm/sec. Calculated groundwater yields by PBW from the aquifer tests ranged between 536 gpd to 19,669 gpd.

PBW acknowledges in their report that short term aquifer tests for most of the wells completed in the Gravels and Sands unit will likely meet the Class 2 resource yield criterion of ≥150 gpd. Portions of the Clayey Gravels and Sands unit may also exhibit Class 2 groundwater characteristics. Actual aquifer yields from pumping tests are as follows:

a) Monitoring well LMW-17 - (completed in Gravel and Sands unit), pump test conducted by J&N in 1995. The well was pumped at a rate of 8 gpm for 300 minutes (5 hours), producing 480 gph or 2,400 gallons over the pumping period, with some drawdown.

b) Monitoring well B5N (completed in the Clayey Gravel and Sands) was able to maintain a pumping rate of 0.1 gpm (150 gpd) over a 48 hour pump test by PBW in March 2013.

This suggests that portions of the Clayey Gravels and Sands unit also exhibit Class 2 groundwater characteristics.

26. Page 2-3. Section 2.6 - Exposure Pathways: Please include fill/base material underneath the facility as a pathway for COC to soil, groundwater and surface water. Even though this is not a conventional COC pathway, it is a pathway at the facility that has caused concerns (i.e. French drain was installed to try to stop the COC from entering Stewart Creek).

27. Table 2C - Complete or Reasonably Anticipated to be Complete Exposure Pathways: Please define "NA" in the note section.

28. Page 3-7. Section 3.2.5 - Utilities/Preferential Pathways: Please add a narrative on the current/past conditions of preferential pathways under the concrete structures/pavements and within fill material (higher K values than the in-situ soils). As it is known, these affected areas/pathways cause concern when it comes to the contaminated areas in and around Stewart Creek, and possible other areas (e.g. future exposures to construction workers).

29. Page 3-8. Section 3.3 - Assessment Methods: Add a narrative to discuss the assessment methods concerning the base/fill material.

30. Figure 4-3 - Soil COC Concentration Map, Lead and Cadmium: The Soil RAL Exceedance Zone marked in green appears to be spatially interpreted biased-low. Example: Soil samples ECO-01(0-0.5), ECO-02(0-0.5), ECO-03(0-0.5) had lead concentrations 431 mg/kg, 396 mg/kg and 1,740 mg/kg, respectively; yet the RAL Exceedance Zone line of 500 mg/kg is much closer to ECO-03(0-0.5) than ECO-01(0-0.5) and ECO-02(0-0.5). Please verify and amend the boundary of the Soil RAL Exceedance Zone with all analytical results from the soil sample locations.

31. Figure 4C-2 – Geologic Cross Sections: (a) Cross section C-C' uses "?" for the contact with the gravel/sand layers. Since the "?" is not defined, it is believed that the contact is inferred. Please confirm. (b) In the same figure (in other cross sections), why weren't the other discontinuous gravel/sand contacts marked inferred? Please verify and amend.

32. Page 5-1. Section 5.0 - Groundwater Assessment: Please see comment #25 and reassess.

33. Figure 5A.1 - Groundwater Potentiometric Contour Map for March 11, 2013: (a) The contour lines north of the Fire Training facility are disconnected. Please verify and amend. (b) Monitoring well LMW-5's water elevation is much lower than the surrounding wells. Please explain the deviation.

34. Figure 5A.2 - Groundwater Potentiometric Contour Map for April 5, 2013: See comment #31.

35. Figure 5A.3 - Groundwater Potentiometric Contour Map for April 29, 2013: Contour lines around monitoring wells VCP-MW-8, VCP-MW-9, and MW-19 are drawn incorrectly based on listed water elevations. Please verify and amend.

36. Page 6-1. Section 6.0 - Surface Water Assessment and Critical PCL Development: Even though Stewart creek maybe tagged as an intermittent stream by TCEQ, one has to be accountable in assessing the creek properly. Based on the following, Stewart Creek has characteristics of a perennial stream:

    i. A stream that flows throughout a majority of the year (or greater than 90% of the time) and flows in a well-defined channel (4 T.A.C. 12 §215.1).

    ii. A stream that has never been documented not flowing: (a) EPA inspectors, TCEQ inspectors and personnel at the facility all have consistently seen Stewart Creek flow, and never seen it not flow – even during drought conditions. (b) Based on all historical aerial photos that EPA possesses, the creek appears to have continuous flow.

    Please verify and amend.

37. Page 6-1. Section 6.0 - Surface Water Assessment and Critical PCL Development: The ^{SW}RBEL value for a given COC shall be protective of relevant downgradient water bodies in consideration of the water body use (e.g., designated drinking water supply or sustainable fishery), the water body type (e.g., estuary or perennial freshwater stream), the standards applicable to the type of

water body/use, and the fate and transport characteristics of the COC in question at the particular affected property (§350.74 (h)). Please assess ^{SW}RBEL to evaluate the PCL development concerning potential impacts on downgradient water bodies and make appropriate changes to the PCL.

38. Page 7-1. Section 7.0 - Sediment Assessment and Critical PCL Development: Please see comments #36 and #37, and reassess.

39. Section 9 - Ecological Risk Assessment (ERA): (a) Note: root zone and burrow depth are at least 0-1 ft bgs. Subsurface soils (below 0.5 ft bgs) should be sampled for evaluating the risks for plants and burrow mammals. (b) One year (4 quarters) of current groundwater sampling data should be used. (c) Sediment hot spots in Stewart Creek downstream of the site should be included in ERA. (d) All soil, surface water and groundwater data should be used in ERA.

40. Figure 11A - Soil PCLE Zone Map: The EPA has analytical data (Floodwall Comp-01) that was shared with Exide that shows contamination (hazardous waste) that exceeds TCLP outside the retaining wall next to Stewart Creek. Also, contaminant concentration found in soil samples in this area shows impact that may affect ecological receptors. Please verify and amend.