PRE-CERCLIS SCREENING ASSESSMENT CHECKLIST/DECISION FORM

This checklist can assist the site investigator during the Pre-CERCLIS screening. It will be used to determine whether further steps in the site investigation process are required under CERCLA. Use additional sheets for the narrative.

Checklist Preparer:

Alexandra Praeuner/ Environmental Manager 2	**November 5, 2014**
(Name / Title)	(Date)
100 N. Senate Ave., Indianapolis, IN 46204	**317-234-8674**
(Address)	(Phone)
apraeune@idem.in.gov	
(Email Address)	

Site Name: **Exide Battery**

Other Names (if any): **Exide Corporation**

Site Location: **555 N. Hoke Avenue**
(Street)

Frankfort	**Clinton**	**IN**	**47302**
(City)	(County)	(State)	(Zip)

Congressional District **District 4**

Latitude: **40.2854 N** **Longitude:** **-86.4953 W**

With regards to the Latitude and Longitude, please provide the following information: Accuracy in Meters +/-, Collection Method, Reference Datum, Reference Point, Source Map Scale, Point/Line/Area; Collection Date; Verification Method
Check to confirm that geospatial information has been attached ☒

Complete the following checklist. If "yes" is marked, please explain below.	**YES**	**NO**
1. Does the site already appear in CERCLIS?	☒	☐
2. Is there an actual release or potential to release?	☒	☐
If "yes" to question 2, do any of the following apply?		
3. Is there documentation indicating that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?	☐	☒
4. Are there undocumented potential targets on-site or within one mile of the site?	☒	☐
5. Is there sufficient documentation that clearly demonstrates that there is no potential for the release to cause adverse environmental or human health impacts (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, EPA approved risk assessment completed)?	☐	☒
6. Is some other program actively involved with the site (i.e., another Federal, State, or Tribal program)?	☒	☐
7. Is the release from products that are part of the structure of, and result in exposure within, residential buildings or businesses or community structures?	☐	☒
8. Does the site consist of a release of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found?	☐	☒
9. Is the release into a public or private drinking water supply due to deterioration of the system through ordinary use?	☐	☒

10. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (i.e., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?	☐	☒
11. Are the hazardous substances potentially released at the site excluded by policy considerations (e.g., deferral to RCRA Corrective Action)?	☐	☒

Please explain all "yes" answer(s), attach additional sheets or refer to narrative:

#1 – Exide Battery is currently listed in CERCLIS as "Removal Actions Only."
#2 – Soil samples with high concentrations of lead were documented in 1987 and 1997. Contaminated soils were removed during both instances. XRF screenings indicate elevated levels of lead in soil on residential properties surrounding the site. A soil and ground water investigation during the removal of an UST indicate significant VOC contamination in soil and ground water.
#4 – Two schools and many nearby residential homes are located within 1 mile of the site. Municipal wells are located approximately 0.75 mile west, and the nearest residential wells are located approximately 0.3 mile northeast of the site.
#6 – IDEM's LUST Section has an active incident (#201404509) with the site. During the removal of an unregulated UST in 2014, soil discoloration was observed. IDEM has required an Intial Site Characterization including analysis of soil and ground water samples.

Site Determination: ☐ Enter the site into CERCLIS. Further assessment is recommended (explain below).
☒ The site is not recommended for placement into CERCLIS (explain below).

DECISION/DISCUSSION/RATIONALE:
Exide Battery (Exide) is located on a 13-acre parcel in Frankfort, IN. Exide acquired the facility from General Battery Company in 1987 and continued battery manufacturing as a large quantity generator until those processes were discontinued in 1998. Since February 1999, the facility has been used to store equipment from other Exide properties. (RCRA Enforcement Permitting Assistance (REPA) 4-2531-012). Exide's battery manufacturing processes produced lead vapors and airborne lead dust. Extensive dust collection devices were observed inside and outside of the plant including bag houses, HEPA filters, and cyclones during a site walkover in 1998 (IDEM Virtual File Cabinet (VFC) #47757346). A wastewater treatment plant containing a sludge storage tank was located on the northwestern corner of the property (REPA4-2431-012).

In May 1987, a facility plant engineer observed stained soil near the casting building. Sample results indicated elevated levels of lead contamination in soil. In July 1989, IDEM and Exide agreed that Exide would excavate one foot of soil from the surface of the 35 foot by 45 foot spill area. After the soil removal was complete, IDEM issued a Notice of Compliance in August 1992.

On August 18, 1997, Exide received a Notice of Violation (NOV) as a result of a RCRA Compliance Evaluation Inspection (CEI). Exide was cited for five violations including the creation of an unpermitted 30-foot by 30-foot waste pile in the northeastern corner of the facility and failure to meet the general requirements for a waste pile. According to an IDEM inspector, material in the waste pile was hazardous lead-contaminated soil generated during cleanup following a fire at the facility. The waste pile and an additional six (6) inches of soil underlying the waste pile had been removed in February 1996. In July 1998, Exide entered into an Agreed Order with IDEM, and Exide submitted a RCRA Closure Plan in September 1998. In March 2000, Exide conducted soil sampling in the former waste pile area, and total lead concentrations ranged from 165 mg/kg to 2,970 mg/kg. IDEM approved Exide to remove a uniform layer of 18 inches of soil from the former waste pile area in November 2000 (REP4-2531-012).

There have been several investigated complaints against Exide Corporation in Frankfort. Past complaints against the facility include alleged dumping of scrap batteries and acid in a 30-foot deep pit (1997), burying of scrap batteries into holes that were covered by concrete (2002), and fugitive dust dispersing into nearby neighborhoods during demolition (2012). No evidence was found to verify fugitive dust or dumping/burying of scrap batteries during follow-up investigations of the facility. During the investigation to evaluate fugitive dust issues in April 2013, it was noted that the demolition of the facility appeared to be complete and gravel was being placed on the property (IDEM VFC #68662406).

In December 2013, a US Bankruptcy Court Case No. 13-11482 was assigned to Exide Corporation (IDEM VFC #69284939). The facility has been completely demolished, and the property currently consists of a fenced gravel area. Closure documentation for the sludge storage tank and the wastewater treatment plant was not available, and the disposition of residual sludge and wastewater upon system closure is unknown (REPA4-2531-012).

In April 2014, two unregulated underground storage tanks (USTs) were removed from the property. The USTs were believed to contain diesel fuel and heating oil. When the diesel UST was removed, hydrocarbon odors and soil discoloration were observed. Over excavation was performed to remove impacted soils, and the suspected release was reported to IDEM's Leaking Underground Storage Tank (LUST) Section on April 17, 2014 (LUST Incident #201404505). Soil samples were collected from the excavation area that indicated the presence of Volatile Organic Compounds (VOCs). Consequently, IDEM required an Intial Site Characterization (ISC) including three soil borings with the collection of soil and ground water samples (IDEM VFC #70412495). On July 1, 2014, four (4) soil and three (3) ground water samples were collected as part of the ISC and analyzed for VOCs. Elevated levels of 1,1-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, Trichloroethene (TCE), and Vinyl Chloride (VC) were detected in soil and ground water samples. The highest levels of TCE and VC detected in ground water were 8,520 ppb and 3,590 ppb, respectively. These ground water results may indicate a significant vapor intrusion potential in the homes located adjacent to the Exide property boundaries.

IDEM Office of Air Quality (OAQ) wind rose data indicates that the prevailing winds are primarily from the southwest, west, and northwest. Residential homes are located immediately adjacent to the western, southern, and eastern property boundaries. Frankfort Middle School and Frankfort High School are located approximately 0.5 mile east of the property. St Matthews Preschool and the Frankfort YMCA, which offers child care services, are located approximately 0.8 miles southeast of the site. Ground water is estimated to flow in a northern direction towards an intermittent creek. Three Frankfort Water Works municipal wells exist 0.75 mile west of the Site. According to the Safe Drinking Water Information System (SDWIS), these wells are inactive. There have been no historical detections of VOCs in the Frankfort Water Works municipal wells according to sampling results available on SDWIS. Surrounding residents primarily utilize municipal water rather than private wells for drinking water purposes. The nearest residential well is located 0.3 mile northeast of the Site. Approximately 17 residential wells exist within one mile of the Site. A majority of these wells exist northeast of the Site.

On September 23, 2014, IDEM Site Investigation staff screened properties surrounding the Exide Battery site with a S1 Titan X-Ray Fluorescent (XRF) Portable Unit. The screening locations and lead concentration results are noted on the Exide Battery XRF Screening Location Map. Surface soil was screened in 17 locations. A majority of the screenings were conducted northeast, east, and southeast of the site, as determined by the prevailing wind direction. Soil 1, Soil 2, and Soil 17 were screened to determine background lead concentrations. The highest lead readings (1388 ppm and 762 ppm) were detected in residential yards located adjacent to the western and northeastern property boundaries. Additional elevated lead concentrations were detected in a residential yard located adjacent to the eastern property boundary and in the right-of-way bordering the northern property boundary. Lead readings were substantially reduced in soils screened approximately 500 feet east of the site at 116 ppm and 350 feet southeast of the site at 90 ppm. Elevated lead readings were only detected in residential yards or right-of-ways next to Exide property boundaries.

Due to the significant potential for vapor intrusion in nearby residential homes and discovered lead contaminated soils in residential yards, this site is recommended to be referred to EPA for a Removal Assessment.

EPA Regional Review and Site Assessment Decision

Check the box(es) that apply:

☐ **Not a Valid Site or Incident**

X **Incident for Further Action Under CERCLA (Note: Site already in SEMS; will retain status of Removal Only Action)**

Recommended Further Action:

☐ **APA**

☐ **Full PA**

☐ **SI**

Defer/Refer to:

X **Removal Program**
☐ **State/Tribal Program**
☐ **RCRA**
☐ **Brownfields**
☐ **Other:** _____

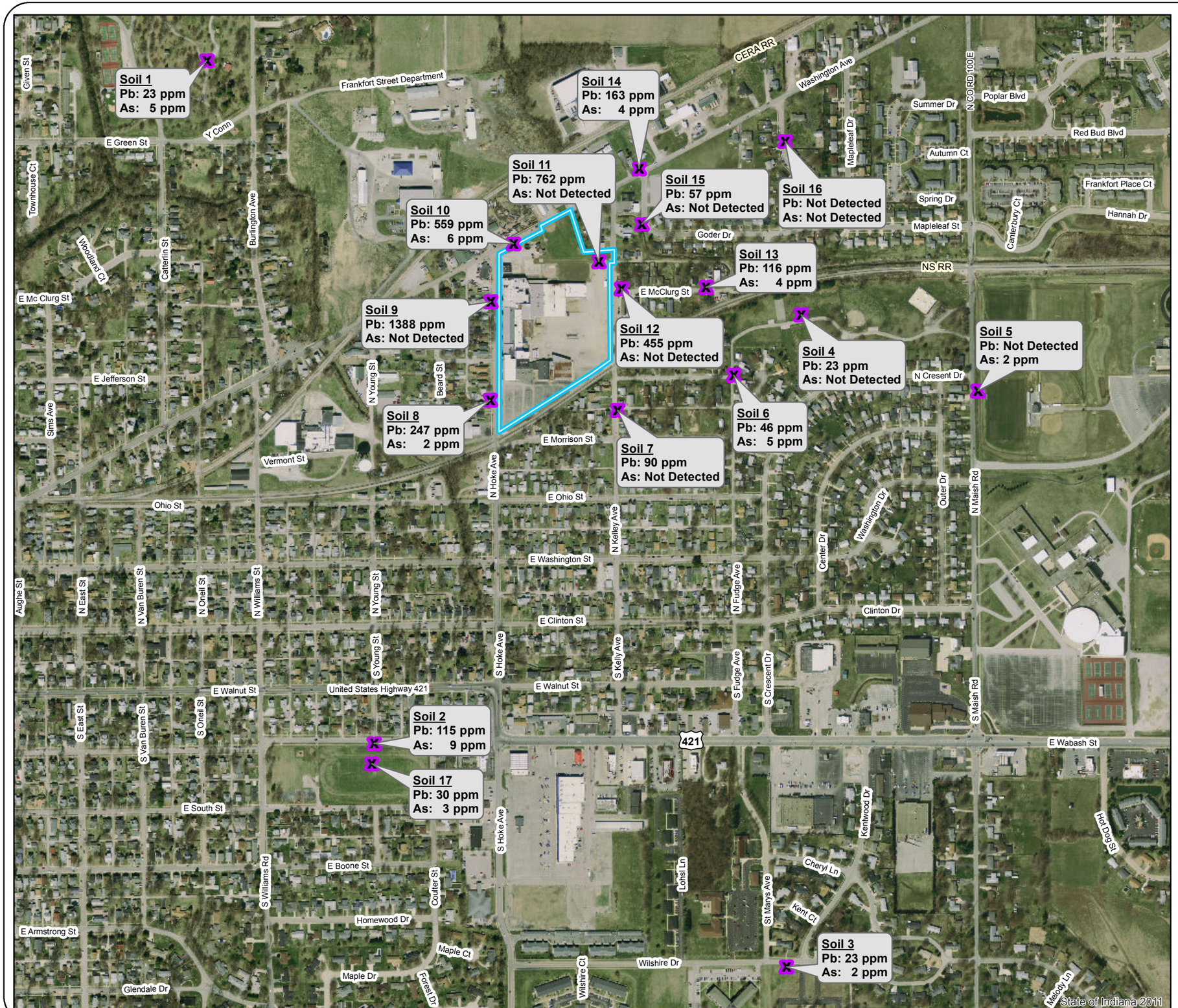
Regional EPA Reviewer: David Brauner / David M. Brauner — 11/5/14
Print Name/Signature — Date

State Agency/Tribe: Alexandra Praeuner/ APraeuner — 11/5/14
Print Name/Signature — Date

Exide Battery XRF Screening Location Map

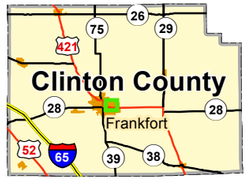
(Lead (Pb) and Arsenic (As))

Frankfort, Clinton County, Indiana



XRF Sample Location
S1 Titan X-Ray Fluorescence (XRF)
Results are in parts per million (ppm)

Approximate Site Boundary
Site Boundary obtained from the Clinton County online GIS website



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By: Diane Osborn, Office of Land Quality
Date: October 7, 2014

0 100 200 400 600 800 Ft
0 30 60 120 180 240 Meters

Sources:
Non Orthophotography Data
- Obtained from the State of Indiana Geographical Information Office Library

Orthophotography
- Obtained from IndianaMap Framework Data (www.indianamap.org)

Map Projection: UTM Zone 16 N
Map Datum: NAD83

Exide Battery Latitude and Longitude Calculation

Latitude: 40.2854 (North)
Longitude: -86.4953 (West)

- **Accuracy in Meters +/-:**
  - 1.524 meters (5ft) accuracy for Color Orthophotos at 12-inch resolution

- **Digital Orthophotography Layer Properties:**
  - Title: 2011 Indiana Statewide 1.0-Foot Digital Orthoimagery
  - Geographic Region: Indiana
  - Pixel Source: Aerial Photography
  - Publisher: Indiana Department of Homeland Security
  - Name: IndianaMap Framework Data (www.indianamap.org)

- **Calculation Method:**
  - The center (site) location was determined by using the centroid of the approximate site boundary. The latitude and longitude values were calculated using the geoprocessing functionality 'Field Calculation' option in the ESRI® ArcMap™ 10.2 GIS software.

- **Reference Datum:**
  - Datum: D_North_American_1983
  - Geographic Coordinate System: GCS_North_American_1983
  - Prime Meridian: Greenwich
  - Angular Unit: Degree

- **Source Map Scale:**
  - 1:6500

- **Point / Line / Area:**
  - Point

- **Collection Date:**
  - 10/20/2014

- **Verification Method:**
  - Map Interpretation

ATTACHMENT A

Letter Report—RCRA Enforcement Permitting Assistance (REPA4-2531-012)

LETTER REPORT

EXIDE CORPORATION
FRANKFORT, INDIANA

November 28, 2011
REPA4-2531-012

Exide Corporation
IND 001 647 460
555 Hoke Avenue
Frankfort, Indiana
Clinton County
40° 17′ 08″ N, 86° 29′ 45″ W

I. Background

Site Description, Geology, and Hydrogeology

The Exide Corporation (Exide) site is located on a 13-acre parcel of land at 555 Hoke Avenue in in Frankfort, Indiana. Frankfort is located approximately 50 miles northwest of Indianapolis in Clinton County in central Indiana. The facility consists of plant buildings formerly used for battery manufacturing in the central portion of the property, a former wastewater treatment facility on the northwest side of the facility, and a parking lot on the southwest side of the facility. The facility is bordered by Washington Avenue to the north, Kelly Avenue to the east, railroad tracks to the south, and Hoke Avenue to the west. The property is surrounded by light industrial facilities to the north across Washington Avenue and residential areas to the east, south and west (Ref. E-62).

The topography of the site is relatively flat with an approximate elevation of 850 feet above mean sea level (MSL). The area is characterized by swell and swale topography. The site is situated in a Fincastle-Crosby silt loam soil unit. Fincastle soils are typically found on rises, and have a brown silt loam surface layer and yellowish brown, mottled silty clay loam to clay loam subsoil. Crosby soils are found on high rises and have a brown silt loam surface layer, and yellowish brown, mottled silty clay loam, clay loam, and loam subsoil Soil borings advanced at the northeastern portion of the site indicate that site has a significant amount of fill, extending from the surface to a depth of at least 5 feet, and the fill appears to contain elevated levels of lead (Ref. E-62 and E-70).

Based on the U.S. Geological Survey publication, "Hydrogeologic Atlas of Aquifers in Indiana," the site is located in the Upper Wabash River Basin. Bedrock beneath the site is located at approximately 550 feet above MSL. The potentiometric surface of the regional unconsolidated aquifer is approximately 800 feet above MSL (Ref. E-62). A tributary to Prairie Creek is located

near the northeastern portion of the site and flows into Prairie Creek approximately 1.5 miles downstream from the Exide facility.

Process and History

The facility was originally developed by Prest-O-Lite Manufacturing and began operations during the World War II era. General Battery Company (General Battery) purchased the property from Prest-O-Lite Manufacturing, prior to the acquisition of the facility by Exide in 1988. The Standard Industry Classification (SIC) code for the facility was 3691, Battery Manufacturing, until those processes were discontinued in February 1997 (Ref. E-62). Since February 1999, the facility has been used to store equipment from other Exide properties (Refs. E-58 and E-72).

The battery manufacturing process began with the casting of lead grids which form plates in the batteries. Lead was melted down in large vats, and the molten lead was piped into casting machines. Molten lead was also fed into a reactor and mixed with air to form lead oxide. Lead oxide was mixed with a small amount of sulfuric acid to form a paste that was applied to the grids to make the battery plates. Alternating positive and negative plates were then dropped into cells in plastic battery cases. A plastic cover was heat-sealed onto the body of the battery. The batteries were then filled with sulfuric acid, connected in rows, and charged. Water was used to cool the batteries after charging. The batteries were then washed, neutralized, and shipped. Lead vapors from the vats and casting machines, and plastic fumes from the heat-sealing process, were vented to baghouses on the southeast side of the building. Lead oxide dust also passed through pipes and into a baghouse (Ref. E-48).

Cooling water used on the batteries was collected in floor drains and emptied to a sump in the wastewater treatment unit on the northwest side of the facility. This sump collected wastewater from the entire plant, including sulfuric acid from the cooling and washing process, and lead from washing in the dry charge operations. The corrosive wastewater (containing primarily sulfuric acid and lead) was pumped into two aboveground holding tanks outside the building and then into reactor tanks located inside the building. Following neutralization with lime, the wastewater flowed to a large clarifier outside, where calcium sulfate settled to the bottom and was pumped to a sludge holding tank and the dewatered in a filter press. Sludge cake from the filter press was collected in a roll-off container, while the extracted water was recycled back to the clarifier. Prior to June 1986, the sludge was dewatered in vacuum pan filters, and the filter cake was temporarily accumulated in an enclosed building before being transported off-site for disposal (Refs. E-8, E-26 and E-48).

Waste Streams

When the site was active as a battery manufacturing facility, hazardous wastes were primarily generated during the manufacturing process. During this time, this Exide facility was classified as a large quantity generator.

As stated previously, the facility's manufacturing process produced lead vapors and airborne lead dust. The lead vapors were captured in baghouses (SWMU 2), and air from the plant was

cycled through a filtering system in the filter building (SWMU 6). Baghouse dust was characterized as hazardous due to its lead content (D008) and was accumulated in waste drums in the hazardous waste accumulation area (SWMU 4) prior to being sent off site to the General Battery/Exide facility in Reading, Pennsylvania for recycling. Used air filters from the filter building and drums of used gloves, respirators, and floor sweepings were also accumulated in the hazardous waste accumulation area (SWMU 4). These D008 hazardous wastes were also transported to the Reading, Pennsylvania facility for recycling (Refs. E-47 and E-48).

Prior to June 1986, sludge from the wastewater treatment unit was collected and accumulated for less than 90 days in an indoor waste pile (SWMU 1). Following closure of the indoor waste pile in June 1986, wastewater carrying the D008 hazardous waste code was transferred from the wastewater treatment unit (SWMU 5) to the filter press for dewatering. The resulting filter cake was collected in a large roll-off container for less than 90 days and then transported to an off-site landfill for disposal. Water extracted from the sludge in the filter press was recycled back to the clarifier, and water from the clarifier was ultimately discharged under permit to the City of Frankfort sanitary sewer system (Refs. E-8 and E-48). Waste naphtha was generated from two parts cleaners (SWMU 9) in a maintenance area in the basement of the plant building and was disposed of by Safety-Kleen (Ref. E-47).

Since 1997, when the battery manufacturing process stopped, the facility has only been generating hazardous wastes as part of cleanup operations. Specifically, lead-containing floor sweepings and debris were classified as D008 hazardous wastes, collected in drums, and transported for processing at the Exide facility in Muncie, Indiana. In December 1999, Heritage Environmental Services removed and disposed of waste from cleanup operations at the baghouses (Ref. E-72). No specific information regarding the cleanup operations was provided in the available file materials. No hazardous waste was generated at the facility in 2009, and one shipment of floor sweepings (D008 waste) was made in 2010. The site is currently classified as a small quantity generator (Ref. E-75 and E-75a).

RCRA Status and Environmental Permits

On August 18, 1980, General Battery submitted a Notification of Hazardous Waste Activity for hazardous waste generation; and treatment, storage, and disposal (TSD) of hazardous wastewater and associated sludge. On November 19, 1980, General Battery filed a Part A hazardous waste permit application for the on-site wastewater treatment facility and for storage of wastewater treatment sludge in an enclosed building. On October 18, 1982, the facility requested that the wastewater treatment unit be withdrawn from the Part A application, because the RCRA amendments no longer required a RCRA permit for such units. On December 8, 1982, EPA approved the withdrawal of the wastewater treatment unit from the Part A application (Refs. E-2, E-3, E-8, and E-10).

On January 7, 1985, General Battery submitted a closure plan for a waste pile that was being used for management of wastewater treatment sludge. This action was taken in order to comply with EPA and Indiana hazardous waste regulations for owners/operators of hazardous waste TSD facilities. The closure plan was revised and resubmitted on September 17, 1985. On October 22, 1985, the Indiana State Board of Health (ISBH) approved the closure plan. General Battery

implemented the closure plan in June 1986. Clean closure certification of the waste pile unit was approved by the Indiana Department of Environmental Management (IDEM) in November 1986. Following closure of the waste pile, wastewater treatment sludge was accumulated in roll-off containers for less than 90 days prior to off-site disposal (Refs. E-15, E-21, E-14, E-24, E-28, and E-48).

On February 19, 1987, General Battery requested that IDEM withdraw the RCRA Part A permit application in its entirety because the waste pile at the facility had been clean closed with IDEM approval. On April 29, 1987, IDEM determined that the facility qualified as a generator only and approved withdrawal of the permit application. On August 24, 1988, the facility revised their Notification of Hazardous Waste Activity to reflect generation of waste naphtha. Based on waste generation rates, the facility was classified as a large quantity generator of RCRA hazardous waste. In 2009, the facility did not generate any wastes and in 2010, the facility made one shipment of D008 wastes. The facility is currently classified as a small quantity generator (Refs E-33, E-38, E-51, E-75 and E-75a).

Exide has a permit from the City of Frankfort to discharge effluent from the on-site wastewater treatment facility to the sanitary sewer (Ref. E-8). The facility also held an operating permit (#16313) issued by the Indiana Department of Air Pollution Control on June 30, 1983. This permit required that lead emissions from the facility meet acceptable state levels (Ref. E-30). Because the facility is currently being used as a warehouse, it is no longer operating under an air permit (Ref. E-72).

Spills, Compliance Inspections, Environmental Assessments and Site Investigations

On September 8, 1976, approximately 500 gallons of sulfuric acid were spilled on the ground when a valve on an acid mixing tank malfunctioned. The sulfuric acid flowed into a sanitary sewer and was discharged to a tributary of Prairie Creek. Approximately 35 bags of hydrated lime (each containing 50 pounds) were applied to the creek about 0.75 miles downstream of the spill. The pH of Prairie Creek downstream of the tributary confluent was found to be 7.5. No fish kill was observed in either the tributary of Prairie Creek (Ref. E-1).

On September 30, 1983, ISBH conducted a RCRA Generator Compliance Inspection at the facility. Based on this inspection, the facility was issued a Notice of Violation (NOV) on October 31, 1983, for lack of personnel training records. In addition, copies of the contingency plan had not been submitted to the state and local emergency organizations (Refs. E-11 and E-12).

On August 2, 1984, ISBH conducted another RCRA Generator Compliance Inspection at the facility. On October 22, 1984, the facility was issued NOV V-008 for not providing documentation to confirm compliance with 40 CFR 265, Subpart L for storage of D008 hazardous waste sludge in a waste pile, and insufficient documentation to show full compliance with personnel training requirements. In January 1985, the facility submitted the missing information to ISHB, as well as a closure plan for the waste pile. On September 9, 1985, ISBH issued NOV V-197 to General Battery for incomplete financial assurance documentation related to closure of the waste pile. On September 17, 1985, the facility submitted a revised closure plan

to address ISBH's comments on the draft dated April 1, 1985. On September 23, 1985, the facility submitted additional financial assurance documentation in response to the September 1985 NOV. On October 8, 1985, ISBH issued a notice of compliance for the two NOVs (V-008 and V-197). ISHB approved the waste pile closure plan on October 22, 1985, and approved the certification of completion of total closure of the waste pile on November 10, 1986 (Refs. E-13, E-14, E-15, E-18, E-19, E-21, E-22, E-23, E-24, and E-31).

On April 3, 1986, IDEM conducted a RCRA compliance inspection at the facility and identified two areas of potential soil contamination. On July 18, 1986, IDEM issued NOV V-137 to the facility for improper labeling and closure of hazardous waste containers, deposition of oil-contaminated boiler blow-down water on the ground next to the castings/grid building, and releases of wastes from spent batteries on the ground in the battery loading area. The NOV requested that the facility submit a cleanup plan for removal and disposal of contaminated soil in the casting building and battery loading area. On December 15, 1986, IDEM issued a Notice of Inadequacy regarding plans the facility submitted for cleanup of the casting building and battery loading area. In this Notice, IDEM requested that soil excavated next to the casting building be tested for polychlorinated biphenyls (PCBs) and total halides, and that the proposed disposal site for the excavated soil be identified. In addition, IDEM requested that analytical results for the contaminated soil in the battery loading area be submitted. On March 27, 1987, IDEM issued another Notice of Inadequacy regarding NOV V-137 requesting the following: analytical results for excavated soil, General Battery's rationale for a 2-foot depth of excavation in the area of the grid cast building, analyses of the excavated soil from both the grid casting building area and the battery loading area for total lead and total cadmium, and excavation of all contaminated soil above background levels. The Notice also requested submission of a sampling and analysis plan for the castings/grid building and battery loading areas, rationale for sample locations chosen, and background metals concentrations (Refs. E-28, E-29, E-32, and E-35).

On January 27, 1987, IDEM conducted another RCRA compliance inspection at the facility. On April 29, 1987, IDEM issued NOV V-492 which cited the following violations: personnel training records were inadequate, personnel had not completed an annual review of initial training, the contingency plan was incomplete, the start of the 90-day generator accumulation period was not labeled on the drums in the drummed waste accumulation area, and the hazardous waste containers were not inspected weekly for leaks and deterioration. In response to facility information submitted on June 5, 1987, IDEM issued a Notice of Inadequacy on August 19, 1987. General Battery provided additional information to IDEM on September 10, 1987, and IDEM issued a Notice of Compliance for NOV V-492 on October 9, 1987 (Refs. E-39, E-42, E-43, E-45, and E-46).

On March 2, 1987, IDEM's Emergency Response Branch (ERB) filed an Incident Report for Incident #873001. This report was a follow-up to a citizen complaint that fuel oil had been detected in a residential basement and two storm sewer manholes in close proximity to the General Battery facility. ERB collected and analyzed a sample of the material for oil and grease. Sampling results indicate that the material was 83.9% oil. As a result of this incident, ERB requested that the facility perform tightness testing on its underground storage tanks (USTs), particularly the 20,000-gallon fuel oil UST located on the north side of the property and approximately 50 feet from an affected manhole. On March 4, 1987, General Battery conducted

tightness testing on three USTs, including the 20,000-gallon #2 fuel oil tank, a 10,000-gallon fuel oil tank on the southeast side of the property, and a 10,000-gallon fuel oil tank on the southwest side of the property. All three tanks failed to meet the tightness testing criteria. In April 1987, the facility closed the 20,000-gallon fuel oil tank in place. No evidence of release was reportedly observed at the time of the tank closure (Refs. E-34, E-36, and E-60). The diesel UST was permanently taken out of service in December 1991 (Ref. E-55). No information regarding the status of the 10,000-gallon fuel oil tank was available for review in the file materials.

On April 15, 1987, IDEM requested that the facility complete a narrative spill report for the fuel oil release identified in the storm sewer on March 2, 1987. At that time, IDEM did not require an Initial Site Characterization (ISC) because heating oil tanks were not regulated under IDEM's Leaking UST (LUST) program. On April 30, 1987, the facility submitted a spill response report to IDEM indicating that they were unaware of any spill occurring on their property. In September 1997, IDEM's LUST Section requested that the facility complete an ISC for Incident #8703001, because the initial incident report indicated that the release was from a diesel UST. In a letter to the IDEM LUST Section in October 1997, Exide indicated that the former #2 fuel oil UST on their property was not believed to be the source of the release related to Incident #873001, because no releases were observed during closure of the tank. IDEM's LUST Section referred Exide's response to the Emergency Response Section, who handles releases from non-RCRA-regulated USTs. Currently, LUST incident #8703001 is listed as discontinued but still active (Refs. E-37, E-40, E-59, E-60, E-61, and E-76).

On May 29, 1987, the facility reported that a plant engineer collected a soil sample in the stained area near the casting building, excavated soil to a depth of approximately 2 feet where the soil was visibly clean, and took another sample. The samples were analyzed for lead, cadmium, oil, and grease. Following receipt of the December 1986 Notice of Inadequacy letter, Exide collected additional samples of the excavated soil and soil in place at the bottom of the 2-foot excavation; these samples were analyzed for PCBs and total halides. In addition, the facility indicated that they would collect samples in a grid pattern at the battery loading area, with one sample collected every 10 feet. The facility also proposed to collect background samples at a depth of 5 feet below ground surface (bgs) at random locations around the site. Exide submitted the results of the soil sampling at the loading dock on August 11, 1988. Based on the results from the grid sampling effort that indicated significant lead contamination in soil, Exide proposed to excavate an area of 35 feet by 45 feet to a depth of 0.5 feet bgs. Soil samples would then be collected from the bottom of the excavation to ensure that a cleanup level of 2,000 milligrams per kilograms (mg/kg) for lead was attained. The excavated material was to be disposed at the Adams Center Landfill in Fort Wayne, Indiana (Refs. E-32, E-41, and E-50).

On September 15, 1988, IDEM issued a Letter of Inadequacy indicating that the proposed cleanup level of 2,000 mg/kg for lead was unacceptable. This letter also required Exide to collect a minimum of three samples at least 100 feet from any roadway or process area to establish background levels of total lead. The cleanup standard would be set at the mean range of the background sample results. On July 17, 1989, IDEM sent Exide a letter indicating that the acceptable cleanup level for lead in soil was 78 mg/kg, based on background sampling. On July 18, 1989, IDEM and Exide agreed that Exide would excavate 1 foot of soil from the surface of the 35 foot by 45 foot spill area and apply a lime buffer to the bottom of the excavation before

backfilling to control pH. The soil removal was implemented as planned and IDEM issued a Notice of Compliance for V-327 on August 4, 1992 (Refs. E-52, E-54, E-54a and E-56).

In March 1988, IDEM conducted a Preliminary Review/Visual Site Assessment (PR/VSI) at the site. The PR/VSI identified five solid waste management units (SWMUs) which are discussed in Section II below (Ref. E-48).

In February 1996, Exide removed hazardous wastes managed in a 30-foot by 30-foot waste pile and disposed of them at a RCRA-permitted off-site TSD facility. An additional 6 inches of soil underlying the waste pile were removed during this action. Clean Harbors conducted the sampling, characterization, and removal of hazardous waste and underlying soil. According to the facility, there were no indications of spillage or run-off outside the immediate waste pile area (Ref. E-62).

On January 31, 1997, IDEM conducted a complaint investigation at the facility. The complaint was made by an anonymous person who identified himself as a former employee of Exide. The complaint alleged that two semi-trailers full of scrap batteries with acid were dumped in a 30-foot deep pit in1991. The pit was allegedly located in a paved parking area on the north side of the plant between the weigh scales and the truck monitor office. Based on the results of the investigation, there was no evidence to support the allegations that scrap batteries had been dumped and buried. The IDEM inspector recommended that no further action was necessary (Ref. E-57).

On June 17, 1997, IDEM conducted a RCRA Compliance Evaluation Inspection (CEI) at the facility. As a result of the inspection, the facility was issued a NOV on August 18, 1997. In the NOV, the facility was cited for five violations: creation of an unpermitted 30-foot by 30-foot waste pile in the northeast corner of the facility; failure to meet the general requirements for a waste pile, such as run-on/run-off management, wind dispersal controls, and a leachate collection system; the facility contingency plan did not properly identify the addresses of all emergency coordinators; one pallet of spent D008 filters was improperly labeled; and one pallet of spent D008 filters was improperly containerized during accumulation. The IDEM inspector identified the material in the waste pile as being hazardous lead-contaminated soils carrying the D008 waste code that were generated during cleanup following a fire at the facility. However, according to the Hazardous Waste Pile Closure Plan, the materials in the waste pile were lead-contaminated soils excavated during the course of a remodeling project at the Exide facility in 1996 (Refs. E-58 and E-62).

In August 1997, Exide and IDEM initiated negotiations to resolve the issues arising from the June 1997 inspection, and Exide submitted additional information regarding the waste pile to IDEM on September 1997. On July 1998, Exide entered into an Administrative Order (AO) with IDEM that required Exide to determine the concentration of lead in soils beneath the former waste pile. In August 1988, soil samples were collected from four soil borings advanced within the former waste pile footprint and analyzed for total lead. The soil samples were collected every 6 inches to a depth of 3 feet bgs, and then at 4 feet bgs and at 5 feet bgs, for a total of 24 samples. Total lead concentrations decreased with depth before increasing near the 5-foot depth interval (Ref. E-62).

On September 18, 1998, Exide submitted the sampling results for the former waste pile to IDEM. Following review of this documentation, IDEM directed Exide to submit a RCRA Closure Plan to complete the requirements of the AO. On March 30, 1999, Exide submitted the Hazardous Waste Pile Closure Plan to IDEM. On March 28, 2000, IDEM approved the March 30, 1999 closure plan, with revisions dated September 9, 1999 (Addendum No. 1), January 20, 2000 (Addendum No. 2), and March 8, 2000 (Addendum No. 3). Exide conducted sampling and closure activities at the facility in accordance with Hazardous Waste Pile Closure Plan and Addenda Nos. 1, 2, and 3. (Refs. E-62, E-63, E-64, E-65, E-67, and E-70)

On March 22, 2000, in accordance with Addendum No. 3 to the closure plan, Exide conducted soil sampling to establish background lead concentrations for shallow fill in the vicinity of the former waste pile. Six soil samples were collected of fill materials to a maximum depth of 18 inches bgs. Total lead concentrations in these samples ranged from 165 mg/kg to 2,970 mg/kg. As approved by IDEM in a letter dated June 29, 2000, Exide removed a uniform layer of 18 inches of soil in the proposed 30-foot by 30-foot excavation area in November 2000. No confirmatory samples were collected at the bottom of the excavation because previous sampling events in the proposed excavation area indicated that lead levels below 18 inches bgs were below the Risk Integrated System of Closure (RISC) Tier 1 Residential values (Refs. E-69 and E-70).

On November 8, 2000, the excavation was backfilled with clean soil imported from Paddock Brothers, Inc. of Frankfort, Indiana. The excavated soils were characterized as hazardous for lead prior to excavation and disposal. Approximately 246 tons of excavated soil were treated to non-hazardous Toxicity Characteristic Leaching Procedure (TCLP) levels of lead and disposed at Max Environmental Inc.'s Mill Services TSD facility in Yukon, Pennsylvania. Exide submitted the Hazardous Waste Pile Closure Report to IDEM on January 9, 2001. IDEM approved the closure report on February 14, 2001. With closure of this unit, the facility was reclassified as a RCRA generator (Refs. E-70 and E-71).

IDEM conducted another RCRA CEI at the facility on June 22, 2001. This inspection revealed that the facility was being used as a storage warehouse for equipment from Exide's other plants. At the time of the inspection, the facility was classified as a small quantity generator of D008 hazardous waste. These wastes included floor sweepings and debris associated with ongoing cleanup of the former manufacturing building. No violations were observed during the CEI (Ref. E-72).

On January 14, 2002, IDEM initiated another complaint investigation of Exide. In December 2001, a previous employee of Exide sent a complaint to the Ohio governor's office which was then forwarded to IDEM. The registered complaint alleged that the facility had excavated holes in the ground in two areas, filled the holes with scrap batteries, and covered the holes with concrete. The first area was allegedly located under the concrete inside the "old battery charging area." The second area was allegedly located near the loading dock on the east side of the facility in the vicinity of the truck scale. Additionally, the complaint alleged the presence of a contaminated gravel pile on the north side of the facility near the wastewater treatment plant. On April 16, 2002, IDEM conducted a citizen compliant inspection (CCI) at the facility, meeting with a long time employee of Exide, who denied the allegations and indicated that the batteries

were recycled and managed as a valuable commodity. IDEM representatives inspected the alleged areas of concern and concluded that there was no basis to justify the allegations (Ref. E-73). The CCI Summary letter sent to Exide on May 14, 2002, indicated that no violations were observed (Ref. E-74).

IDEM conducted another RCRA CEI of the Exide plant on June 21, 2010; this is the most recent CEI identified in available file material. The inspection report noted that no hazardous waste was generated at the facility in 2009, and only one shipment of floor sweepings (D008) had occurred in 2010 as of the time of the inspection. No violations were observed during the inspection (Ref. E-75).

II. Summary of SWMUs and AOCs

The following section discusses the five SWMUs identified in the 1988 PR/VSI (Ref. E-48). Four additional units (SWMUs 6, 7, 8, and 9) and three areas of concern (AOCs) were added to this list as a result of the current file review.

SWMU 1: Former Waste Pile #1 (Sludge Storage Area)

Description and Release History

The former waste pile, also referred to as the Sludge Storage Area, was located in the sludge storage building on a concrete floor. The waste pile was used for accumulation (less than 90 days) of dewatered calcium sulfate sludge (D008 hazardous waste) from wastewater treatment operations at the facility. Prior to June 1986, the calcium sulfate sludge was dewatered in a vacuum pan filter, and temporarily accumulated at SWMU 1. Approximately 324 tons of dewatered sludge were generated each year and transported off site for disposal at the Adams Center Landfill in Fort Wayne, Indiana (Refs. E-26 and E-48).

Release Control, Response Actions, and Environmental Data

At the time of the 1988 PR/VSI, the waste pile no longer existed. The waste pile underwent closure in accordance with an ISBH-approved closure plan in 1986. No history of any releases from this waste pile has been identified because the waste pile was located indoors in an enclosed area on a concrete floor. Leachate generated during the temporary accumulation period was collected and transferred to the wastewater treatment system for processing (Refs. E-26 and E-48).

According to the approved closure plan, sludge remaining in the waste pile at the time of closure was placed in a roll-off container and transported to the Adams Center Landfill in Fort Wayne, Indiana. The concrete walls and floors of the sludge storage area and adjacent areas were washed to remove contaminants. The building was subsequently modified to enable sludge to drop directly from dewatering equipment into a large roll-off container. Exide submitted closure certifications to ISBH in June and July 1986. ISBH issued a

completion of closure letter to the facility in November 1986 (Refs. E-15, E-21, E-24, E-31, and E-48).

Data Gaps

None

SWMU 2: Sludge Storage Tank

Description and Release History

The sludge storage tank was located inside the wastewater treatment building on concrete slab and was used in conjunction with wastewater treatment operations at the facility. The sludge storage tank was used for temporary accumulation of liquid calcium sulfate sludge prior to dewatering. Sludge was withdrawn from the wastewater treatment system's clarification tank and pumped to this sludge storage tank for holding prior to dewatering. The sludge was classified as D008 hazardous waste for its lead content. After dewatering, the liquid waste was transferred back to the treatment system's reaction tank; the dewatered sludge was routed to SWMU 1. It is expected that use of the SWMU 2 sludge holding tank ended in 1997, when battery manufacturing operations ceased at the Exide facility (Refs. E-48 and E-72).

Release Control, Response Actions, and Environmental Data

The sludge storage tank was located inside on concrete slab. The tank was in active operation at the time of the PR/VSI in 1988; however, no recommendations were provided for this unit in the PR/VSI report. Spilled material would have been contained by the building. No history of any releases has been identified with the sludge storage tank.

Data Gaps

Closure documentation for the sludge storage tank was not found in available file material for review during preparation of this letter report. Further details are unknown, including whether the tank is still in place, whether it has been cleaned out, and the final disposition of the residual waste materials.

SWMU 3 – Baghouses

Description and Release History

The baghouses are located outside behind the plant building. When the facility was used to manufacture batteries, lead fumes from molten lead and lead oxide dusts were vented to the baghouses. Dust that accumulated in the baghouses was classified as D008 hazardous waste due to its lead content. The baghouse dust was transferred to drums, accumulated in the hazardous waste accumulation area (SWMU 4) for less than 90 days and shipped to a lead smelter facility in Pennsylvania for reclamation (Ref. E-48).

Release Control, Response Actions, and Environmental Data

The PR/VSI described the ground beneath the baghouses as appearing dark, indicating possible contamination from lead dust. The VSI recommended that soil samples be collected from several depths beneath all baghouses and analyzed for lead (Ref. E-48). It is expected that use of the baghouses ended in 1997, when the facility ceased manufacturing batteries.

A CEI conducted by IDEM in June 2001 indicated that cleanup of the baghouses had been completed, and that Heritage Environmental Services had removed and disposed of the waste generated from the cleanup activities (Ref. E-72).

Data Gaps

It is unknown if soil samples were collected beneath the baghouses. Furthermore, the scope of cleanup activities for this SWMU was not specified in available file material and the disposition of residual sludge upon system closure is unknown.

SWMU 4 – Hazardous Waste Accumulation Area

Description and Release History

The hazardous waste accumulation area is located inside the south -central end of the plant building. The area is approximately 15 feet by 20 feet. When the facility was manufacturing batteries, this hazardous waste accumulation area was used for accumulation (less than 90 days) of drums containing lead-contaminated dust (D008 waste) from the baghouses, prior to off-site transport to a secondary lead smelter in Pennsylvania for recycling. Used air filters from the filter building and drums of used gloves, respirators, and floor sweepings were also accumulated in the hazardous waste accumulation area and transported off site as D008 waste to Reading, Pennsylvania for recycling. Approximately 125 tons of lead-containing materials were generated in 1984 (Ref. E-26, E-47 and E-48).

Release Control, Response Actions, and Environmental Data

Hazardous waste drums were accumulated on a concrete floor inside the plant building. The used air filters shrink-wrapped with plastic were accumulated on pallets in the hazardous waste accumulation area. There are no documented releases from this unit, but spilled material would likely have been contained by the building. No violations associated with this unit were noted during the June 2001 and June 2010 CEIs. No hazardous waste was being accumulated in the hazardous waste accumulation area at the time of the June 2010 CEI (Refs. E-48, E-72, and E-75).

Data Gaps

None

SWMU 5 – Wastewater Treatment Unit and Sump

Description and Release History

The wastewater treatment facility was installed in 1970 and is located in the northwestern corner of the property. Battery manufacturing operations generated approximately 35,000 gallons of wastewater containing sulfuric acid and lead (D002 and/or D008 waste) per day. Process wastewater was collected in a series of floor drains in the plant buildings and piped to the on-site treatment facility. At the treatment facility, wastewater was initially collected in a sump and pumped to one of two aboveground holding tanks for equalization. The holding tanks were located outside the treatment facility, and each tank held approximately 6,350 gallons of wastewater. From the holding tanks, wastewater was pumped into a three-stage reaction tank where lime was added for pH neutralization and precipitation of lead. The reaction tank had a design capacity of 48,000 gallons.

In April 1984, an 865,700-gallon clarification tank located outside the wastewater treatment building was placed into operation and was used in the treatment scheme for solids and liquids separation. Solids consisted primarily of calcium sulfate from the lime neutralization process that had settled to the bottom of the clarification tank. Treated and clarified liquid from the clarification tank was discharged under a permit to the city sewer system. Semi-solid sludge at the bottom of the clarifier was withdrawn and pumped to a sludge tank (SWMU 2) for temporary holding prior to dewatering in a filter press. Filtrate from the sludge dewatering operations was collected and pumped back into the reaction tank for subsequent treatment. Dewatered sludge from the filter press was accumulated in a roll-off container (SWMU 6) prior to off-site transport to Adams Center Landfill for disposal. Prior to June 1986, the sludge was dewatered in a vacuum pan filter and dewatered sludge was accumulated in a waste pile (SWMU 1) in an enclosed building before being transported off site for disposal.

Release Control, Response Actions, and Environmental Data

The aboveground wastewater treatment holding tanks were located outside on a concrete pad. The system's sump and reactor tanks were located inside the facility. There are no documented releases from either the sump or the wastewater treatment system itself. It is expected that a significant release of hazardous sludge or wastewater from this unit would have been noted in the file material, as it likely would have interrupted process operations at the facility (Ref. E-48).

Data Gaps

No information was found in the available file material on the integrity of the sump located inside the wastewater treatment building. No closure documentation for this unit was available for review, and the disposition of residual sludge and wastewater upon system closure is unknown.

SMWU 6 – Filter Building

Description and Release History

This unit was not previously assigned a SWMU number at the time of the PR/VSI, but was assigned a SWMU number for purposes of this letter report. This unit functioned like a baghouse during the plant's manufacturing operations. Air from inside the plant building was sucked into the filter building where dust was caught in a system of filters. The clean air was then recycled back into the plant. The filters were cleaned or replaced as necessary. Old filters were treated as hazardous waste (D008), accumulated in the hazardous waste accumulation area for less than 90 days, and sent to a secondary lead smelter in Pennsylvania for recycling. Lead-contaminated dust (D008 waste) from the filters was collected in 55-gallon drums that were also accumulated in the hazardous waste accumulation area for less than 90 days and transported to a secondary lead smelter in Pennsylvania for recycling (Refs. E-48 and E-58).

Release Control, Response Actions, and Environmental Data

The filter system was totally encapsulated and there are no documented releases from the unit. Old filters were shrink-wrapped in plastic before being placed on pallets to prevent residual dust from falling off the used filters (Refs. E-48 and E-58).

Data Gaps

None

SWMU 7 – Roll-off Container

Description and Release History

This unit was not previously assigned a SWMU number at the time of the PR/VSI, but was assigned a SWMU number for purposes of this letter report. This unit was a roll-off container located indoors beneath the filter press. This unit was used for less than 90-day accumulation of dewatered wastewater treatment sludge carrying the D008 hazardous waste code until that waste was transported off site for disposal (Ref. E-48). It is estimated that use of the SWMU 7 roll-off container for collection of dewatered sludge ended in 1997, when battery manufacturing operations ceased at the Exide facility (Ref. E-72).

Release Control, Response Actions, and Environmental Data

This unit was located inside the plant building on a concrete floor. The PR/VSI indicated that the facility was practicing good housekeeping and no concerns with this unit were identified in compliance inspections conducted at the facility (Refs. E-48 and E-58). As a result, environmental releases are unlikely. Accordingly, there are no documented releases from this unit.

Data Gaps

None

SWMU 8 – Former Waste Pile #2

Description and Release History

This unit did not exist at the time of the 1988 PR/VSI, but was assigned a SWMU number for purposes of this letter report. This unit is a 30-foot by 30-foot waste pile formerly located in the northeast potion of the facility. The waste pile contained lead-contaminated soil that was reportedly excavated during the course of a remodeling project conducted at the facility in 1996. Approximately 123 cubic yards of lead-contaminated soil were placed directly on the ground surface at this unit. All wastes managed in the waste pile were removed from the area and disposed at a permitted off-site TSD facility in February 1996. An additional 6 inches of soil beneath the waste pile was also removed during this operation. Reportedly, there were no indications of spillage or run-off outside the defined 30-foot by 30-foot pile footprint. Sampling, characterization, and removal of wastes and soil were conducted by Clean Harbors of Chicago, Illinois (Ref. E-62).

Release Control, Response Actions, and Environmental Data

The waste pile came to the attention of IDEM during a routine CEI conducted in June 1997. Following the inspection, IDEM issued a NOV to Exide for creating a hazardous waste pile without a permit and for failure to meet the general requirements for a waste pile such as run-on/run-off management, wind dispersal controls, and leachate collection (Ref. E-58). On July 1998, Exide entered into an AO with IDEM to resolve issues arising from the inspection and resulting NOV (Ref. E-62).

Exide collected soil samples from four soil borings advanced within the former waste pile footprint and analyzed the soil samples for total lead in August 1998. The soil samples were collected every 6 inches to a depth of 3 feet bgs, and then again at 4 feet bgs and at 5 feet bgs, for a total of 24 samples. Total lead concentrations ranged from 11 to 3,800 mg/kg. The concentrations decreased with depth before increasing in fill materials near the 5-foot depth. Based on the sampling results, IDEM directed Exide to submit a closure plan for the hazardous waste pile (Ref. E-62). The Closure Plan and Addendas No. 1, 2, and 3 were approved by IDEM in March 2000 (Ref. E-67).

On March 22, 2000, Exide conducted soil sampling to establish background lead concentrations for shallow fills in the vicinity of the former waste pile in accordance with Addendum No. 3 to the hazardous waste pile closure plan. Six soil samples were collected of fill materials to a maximum depth of 18 inches bgs and analyzed for total lead. Total lead concentrations ranged from 165 to 2,970 mg/kg. In November 2000, Exide removed a uniform layer of 18 inches of soil in an area with dimensions of 40 feet by 40 feet in accordance with the approved closure plan. The excavation area was expanded by 5 feet on each side of the original footprint of the waste pile. No confirmatory samples were collected

at the bottom of the excavation because previous sampling events in the proposed excavation area indicated that lead levels below 18 inches bgs were below the RISC Tier 1 Residential values. However, lead levels around 5 feet bgs increased to levels above RISC Tier 1 Residential values (Refs. E-69 and E-70).

On November 8, 2000, the excavation was backfilled with clean soil imported from Paddock Brothers, Inc. of Frankfort, Indiana. The excavated soils were characterized as hazardous for lead prior to disposal. Approximately 246 tons of excavated materials were treated such that leachable levels of lead were below RCRA TCLP concentrations and disposed at Max Environmental Inc.'s Mill Services TSD facility in Yukon, Pennsylvania. Exide submitted the Hazardous Waste Pile Closure Report to IDEM on January 9, 2001. IDEM approved the closure report on February 14, 2001 (Refs. E-70 and E-71).

Data Gaps

It is not clear whether the increasing lead concentrations detected in the fill at 5 feet bgs are a regional concern or unique to this site.

SWMU 9 – Parts Cleaners

Description and Release History

This unit was not documented in the PR/VSI, but was assigned a SWMU number for purposes of this letter report. This unit consisted of two parts cleaners located in the maintenance area in the basement of the plant building. The parts cleaners generated waste naphtha, which was disposed off site by Safety-Kleen (Ref. E-47). Inspections conducted in 2001 and 2010 did not reveal the presence of the parts cleaners on site (Ref. E-72 and E-75).

Release Control, Response Actions, and Environmental Data

The parts cleaners were located inside the plant building on concrete slab. Spilled material would have been contained by the building. Moreover, because the waste naphtha was a valuable recyclable commodity, it would have made economic sense for both Exide and Safety-Kleen to ensure unit integrity and promptly clean up and containerize any waste naphtha that was spilled. Accordingly, there are no documented releases from this unit.

Data Gaps

None

AOC 1 – Loading Dock Area

Description and Release History

This AOC was not identified in the PR/VSI, but was assigned an AOC number for purposes of this letter report. This AOC was identified by IDEM during a RCRA Compliance

Inspection conducted on April 3, 1986. On July 18, 1986, IDEM issued General Battery an NOV (V-137) for depositing waste from spent batteries on the ground in the battery loading area. The loading dock was used for loading spent batteries. The area of contamination was a 35-foot by 45-foot area located east of the loading dock (Refs. E-28 and E-29).

Release Control, Response Actions, and Environmental Data

On January 19, 1988, Exide collected 32 soil samples in a 10-foot grid pattern throughout the 35-foot by 45-foot area east of the battery loading dock. Soil samples were randomly collected at depths up to 5 feet to support determination of background lead and cadmium concentrations in soil. Lead concentrations ranged from 12 to 9,300 mg/kg, and cadmium concentrations ranged from 0.11 to 13 mg/kg. Six samples were also analyzed for leachable levels of lead and cadmium, as measured using TCLP. TCLP lead concentrations ranged from 2.4 to 15 mg/L. TCLP concentrations greater than 5.0 mg/L of lead are considered characteristic hazardous waste (D008). The TCLP cadmium concentrations ranged from non detect (ND) to 0.02 mg/L, which were below the TCLP regulatory level of 1.0 mg/L for cadmium.

Based on the sampling results, Exide proposed to excavate the 35-foot by 45-foot area to a depth of 6 inches bgs and collect confirmation samples to ensure that the cleanup level of 2,000 mg/kg for lead was successfully achieved (Ref. E-50). However, IDEM disagreed with the proposed 2,000 mg/kg cleanup level and required that a site-specific cleanup standard be established based on the mean range of a minimum of three background samples collected at least 100 feet from any roadway or process area. In November 1988, IDEM met with Exide to identify appropriate background sample locations. On July 17, 1989, IDEM informed Exide that the site-specific cleanup level would be 78 mg/kg for lead based on the results of the background samples collected by Pollution Control Systems, Inc. (Refs. E-53 and E-54). In a meeting at the site on July 18, 1989, IDEM and Exide agreed to excavate 1 foot of soil from the surface of the 35-foot by 45-foot spill area and apply a lime buffer to the bottom of the excavation before backfilling to control pH. In August 1992, IDEM issued a notice of compliance for NOV (V-327), which included the area now designated as AOC 1 (Ref. E-56).

Data Gaps

Based on the fact that IDEM determined that compliance was achieved for this AOC, it is assumed that Exide executed the cleanup plan that IDEM and Exide agreed upon on July 18, 1989. Available file documentation confirms that IDEM issued a notice of compliance for this AOC.

AOC 2 – Castings/Grid Building Area

Description and Release History

This AOC was not identified in the PR/VSI, but was assigned an AOC number for purposes of this letter report. This AOC was identified by IDEM during a RCRA Compliance

Inspection conducted on April 3, 1986. On July 18, 1986, IDEM issued General Battery a NOV (V-137) for depositing oil-contaminated boiler blow-down waste on the ground next to the castings/grid building. During the inspection, oil spillage was noted on the railroad tracks outside of the casting department. According to a facility employee, the oil was from air compressor blow-out. The outfall pipe for "chiller water" was in the same area. Water from the outfall pipe flowed approximately 500 feet through the area and into a loading dock drain. No information was provided in available file material as to where the drain discharged (Refs. E-28 and E-29).

Release Control, Response Actions, and Environmental Data

The oil-contaminated boiler blow-down waste was released to the ground. Consequently, there were no release controls for this AOC. In response to the July 1986 NOV, the facility collected a sample of waste from the stained area, and then excavated soil in the stained area to a depth of approximately 2 feet bgs, where the soil was visibly clean. The facility collected a soil sample at the bottom of this excavation. Both samples were analyzed for lead, cadmium, oil, and grease. Information regarding the excavation was submitted to IDEM in January 1987.

In a Notice of Inadequacy dated March 27, 1987, IDEM requested further explanation for the 2-foot depth of excavation and asked that the samples of excavated materials also be analyzed for PCBs and total halides. In response to the Notice of Inadequacy, the facility collected another sample of the excavated material and a confirmatory soil sample at the 2-foot depth of the excavation. The samples were analyzed for PCBs and total halides, but no data were found in the available file material during preparation of this letter report. In a response letter dated May 29, 1987, the facility indicated it was their understanding (based on phone conversations with IDEM) that it was only necessary to excavate to a depth where the soil was free of any "visible" stain. Exide also indicated that, based on the analytical results, they planned to dispose of the excavated material as non-hazardous, special waste in a RCRA landfill approved by IDEM (Refs. E-35 and E-41).

In August 1992, IDEM issued a notice of compliance for violations associated with AOC 2, including the release of oil-contaminated boiler blow-down waste in the Castings/Grid Building Area (Ref. E-56).

Data Gaps

Analytical results for the excavated soil and the soil samples collected at the bottom of the excavation were not available for review. In addition, no information was available on the amount of soil excavated, and the final deposition of the excavated soil. However, available file material confirms that IDEM issued a notice of compliance for this AOC.

AOC 3 – Underground Petroleum Storage Tanks

Description and Release History

In 1987, the facility had three active USTs: a 20,000-gallon #2 fuel oil tank located on the north side of the facility, a 10,000-gallon diesel tank located in the southeast side of the facility, and a 10,000-gallon #2 fuel oil tank located on the southwest side of the facility. The exact locations of these USTs are unknown. The diesel UST was constructed of steel with galvanized steel piping around 1981, last used in October 1990, and permanently taken out of service in December 1991 (Refs. E-27 and E-55).

On March 2, 1987, as a follow-up to a citizen complaint, ERB filed an Incident Report indicating that fuel oil had been detected in a residential basement and two storm sewer manholes in close proximity to the General Battery facility, including the 20,000-gallon fuel oil tank located approximately 50 feet from an affected manhole. As a result of the incident, ERB requested that Exide perform tightness testing on its three USTs. Tightness testing was conducted on March 4 and10, 1987, and all three tanks failed the tightness criteria of $\pm$ 0.05 gallons of leakage per hour (Refs. E-34 and E-36). Based on these results and the fact that the UST was the nearest facility tank to the complainant's house, Exide decided to close the 20,000-gallon #2 fuel oil UST in April 1987. However, the facility denied that the fuel oil UST was the source of the release (Ref. E-61).

Release Control, Response Actions, and Environmental Data

No information regarding release controls for the USTs was found in the available file materials. According to a letter from Exide's legal counsel dated October 6, 1997, the 20,000-gallon fuel oil UST was closed in place in April 1987, in accordance with Indiana Fire Marshall regulations in effect at that time. During closure, the UST was emptied of residual fuel oil, cleaned, inspected by the Fire Marshall, and filled with clean fill. According to the maintenance supervisor, no evidence of release was observed during the tank closure (Ref. E-61). In addition, the 10,000-gallon diesel tank was permanently taken out of service in December 1991.

Data Gaps

No closure report was available for the former 20,000-gallon fuel oil UST or the 10,000-gallon diesel tank located on the property. The current status of the 10,000-gallon fuel tank is unknown.

III. Risk Assessment

No formal risk assessment has been completed to date for this site.

IV. Recommendations and Next Steps

Based on a review of available file materials, the following additional actions are recommended for the Exide site in Frankfort, Indiana:

1. No further action is recommended for SWMUs 1, 4, 6, 7, 8 and 9, as well as AOCs 1 and 2.

2. It is recommended that additional file review be conducted with regard to the sludge storage tank (SWMU 2) to determine if the tank was properly closed. If no further documentation is uncovered, the unit should be formally closed under RCRA, with associated documentation submitted to EPA for review and approval.

3. Additional file review or personnel interviews should be conducted to determine corrective actions completed, data obtained, and criteria used to determine that closure was complete (including any necessary corrective actions for soil) at SWMU 3. If such information is unavailable, limited soil sampling is recommended to confirm that lead levels do not exceed relevant soil screening levels.

4. It is recommended that additional file review be conducted with regard to the Wastewater Treatment Unit (SWMU 5) to determine if the integrity of the sump was ever evaluated. If no further documentation is uncovered, additional investigation activities should be performed to determine if the sump was a potential source for the release of hazardous constituents to the environment. In addition, the unit should be formally closed under RCRA, with associated documentation submitted to EPA for review and approval.

5. The status of the 10,000-gallon #2 fuel oil UST (AOC 3) should be determined, and the tank should be properly closed under RCRA, if necessary. Limited soil sampling is recommended in the location of the other two former USTs (i.e., the 20,000-gallon fuel oil UST and the 10,000-gallon diesel UST) to confirm that no contamination remains in place above relevant soil screening levels.

V. References

Document Date	Title	Author	Reference (E-#)
October 15, 1976	Sulfuric Acid Spill	Indiana Division of Water Pollution Control	E-1
August 13, 1980	Notification of Hazardous Waste Activity	General Battery	E-2
November 19, 1980	RCRA Part A Permit Application	General Battery	E-3
January 1982	Indiana's Hazardous Waste Management Permit Program	ISBH	E-4
March 19, 1982	Request for Withdrawal of Part A Hazardous Waste Withdrawal Permit Application	General Battery	E-5
June 3, 1982	Interim Status Acknowledgement	EPA	E-6
October 7, 1982	Permit Application Withdrawal Letter (Requested Closure Plan)	EPA	E-7
October 18, 1982	Request for RCRA Permit Application Withdrawal	General Battery	E-8
December 8, 1982	Approval of Withdrawal of Part A (Wastewaster Treatment Unit)	EPA	E-10
September 30, 1983	RCRA Inspection Report	ISBH	E-11
October 31, 1983	RCRA Generator Compliance Inspection - Notice of Violation	ISBH	E-12
August 2, 1984	RCRA Inspection Report	ISBH	E-13
October 22, 1984	RCRA Generator Compliance Inspection - Notice of Violation (V-008)	ISBH	E-14
January 4, 1985	Waste Pile Closure Plan	General Battery	E-15
January 8, 1985	RCRA Facility Review for SWMUs	IDEM	E-16
February 11, 1985	Waste Pile Closure Plan – Acknowledgement of Receipt	ISBH	E-17
March 15, 1985	RCRA Generator Inspection – Review of Response to October 22, 1985 Notice of Violation	ISBH	E-18
April 1, 1985	RCRA Generator Inspection Response	General Battery	E-19
September 9, 1985	RCRA Financial Assurance Inspection – Notice of Violation (V-197)	ISBH	E-20
September 17, 1985	Waste Pile Closure Plan (Revised)	General Battery	E-21
September 23, 1985	RCRA Financial Assurance Inspection – Notice of Violation (V-197) Response	General Battery	E-22
October 8, 1985	Notice of Compliance (V-008 and V-197)	ISBH	E-23
October 22, 1985	Waste Pile Closure Plan Approval	ISBH	E-24

Document Date	Title	Author	Reference (E-#)
November 12, 1985	Corrective Action Requirements	EPA	E-25
December 2, 1985	Certification Regarding Potential Releases from Solid Waste Management Units	General Battery	E-26
April 22, 1986	Notification of USTs	General Battery	E-27
June 10, 1986	RCRA Compliance Inspection	IDEM	E-28
July 18, 1986	Notice of Violation (V-327)	IDEM	E-29
August 1, 1986	Operation Permit	Indiana Air Pollution Control Board	E-30
November 10, 1986	Completion of Closure of Waste Pile	IDEM	E-31
December 15, 1986	Notice of Inadequacy (V-327)	IDEM	E-32
February 19, 1987	Request for Withdrawal of Part A Application	General Battery	E-33
March 2, 1987	Final Incident Report	ERB	E-34
March 27, 1987	Notice of Inadequacy (V-327)	IDEM	E-35
April 1, 1987	Tank Tightness Testing Results	General Battery	E-36
April 15, 1987	Fuel Oil Release	IDEM	E-37
April 29, 1987	Approval of Withdrawal of Part A Application	IDEM	E-38
April 29, 1987	Notice of Violation (V-492)	IDEM	E-39
April 30 , 1987	Alleged Fuel Oil Release	General Battery	E-40
May 29, 1987	Notice of Inadequacy (V-327) Response	General Battery	E-41
June 5, 1987	Notice of Inadequacy (V-492) Response	General Battery	E-42
August 19, 1987	Notice of Inadequacy (V-492)	IDEM	E-43
September 10, 1987	Notice of Inadequacy (V-492) Response	General Battery	E-45
October 9, 1987	Notice of Compliance (V-492)	IDEM	E-46
January 15, 1988	Generator RCRA Inspection Report	IDEM	E-47
March 15, 1988	Preliminary Review Report/Visual Site Inspection (PR/VSI)	IDEM	E-48
July 18, 1988	Notice of Compliance (V-008, V-197)	IDEM	E-49
August 11, 1988	Notice of Inadequacy (V-492) Response (Loading Dock Sampling)	Exide	E-50
August 24, 1988	Notification of Hazardous Waste Activity (Revised)	Exide	E-51
September 15, 1988	Letter of Inadequacy (V-327)	IDEM	E-52
September 19, 1988	Notification of Hazardous Waste Activity Update Letter	EPA	E-53
July 17, 1989	Letter of Inadequacy (V-327)	IDEM	E-54

Document Date	Title	Author	Reference (E-#)
July 25, 1989	Memorandum: Meeting Regarding Cleanup Levels	IDEM	E-54a
December 16, 1991	Notification of USTs	Exide	E-55
August 4, 1992	Notice of Compliance (V-327)	IDEM	E-56
January 30, 1997	Complaint Investigation Report	IDEM	E-57
August 18, 1997	RCRA Compliance Evaluation Inspection Preliminary Determination	IDEM	E-58
September 9, 1997	Initial site Characterization, Incident #8703001	IDEM	E-59
October 6, 1997	Exide Corporation, IDEM Incident #8703001	Sommer & Barnard	E-60
October 29, 1997	LUST #8703001	IDEM	E-61
March 30, 1999	Hazardous Waste Pile Closure Plan	Earth Tech	E-62
April 21, 1999	Waste Pile Closure Plan – Notice of Deficiency	IDEM	E-63
September 9, 1999	Response to Comments and Addendum to Waste Closure Plan	Advance GeoServices Corporation	E-64
December 15, 1999	Waste Pile Closure Plan – Notice of Deficiency	IDEM	E-65
January 20, 2000	Response to Comments and Addendum to Waste Closure Plan	Advance GeoServices Corporation	E-66
March 28, 2000	Closure Plan Approval	IDEM	E-67
June 9, 2000	Soil Sampling Summary	Advance GeoServices Corporation	E-68
June 29, 2000	Soil Sampling Summary	IDEM	E-69
January 9, 2001	Hazardous Waste Pile Closure Report	Advance GeoServices Corporation	E-70
February 14, 2001	Completion of Closure of Waste Pile	IDEM	E-71
July 29, 2001	RCRA Compliance Evaluation Inspection Results	IDEM	E-72
April 24, 2002	Trip Report for Complaint Investigation	IDEM	E-73
May 14, 2002	Complaint Investigation Summary	IDEM	E-74
July 7, 2010	Inspection Summary Letter	IDEM	E-75
February 8, 2011	Annual Manifest Summary Report	Exide	E-75a
November 11, 2011	LUST Database	IDEM	E-76