REVISED
ADDENDUM TO THE NOVEMBER 15, 2013
WORK PLAN FOR OFF-SITE SOIL SAMPLING
EXIDE TECHNOLOGIES
VERNON, CALIFORNIA

Prepared for:
EXIDE TECHNOLOGIES
Vernon, California

ADDENDUM TO THE NOVEMBER 15, 2013 WORK PLAN FOR OFF-SITE SOIL SAMPLING EXIDE TECHNOLOGIES VERNON, CALIFORNIA

Prepared For:

EXIDE TECHNOLOGIES
Vernon, California

Prepared By:

ADVANCED GEOSERVICES
West Chester, Pennsylvania

Project No. 2013-3007-07
March 21, 2014
Revised April 30, 2014
Revised July 26, 2014

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1.0 INTRODUCTION

The Off-Site Soil Sampling Report (Report) dated February 18, 2014 documented the results of sampling conducted in two residential areas located to the north and south of the Exide Vernon facility and a background area in accordance with a November 15, 2013 Off-Site Soil Sampling Work Plan (Work Plan) prepared by Advanced GeoServices and approved by the California Department of Toxic Substances Control (DTSC). DTSC reviewed the Report and on March 10, 2014 provided comments to Exide. These comments directed Exide to prepare a work plan for soil sampling to:

1. Delineate concentrations of lead above 80 mg/kg both vertically and horizontally within the Northern and Southern Assessment Areas and at Salazar Park School (see Figure 1). Include sampling at additional properties within the Assessment Areas at the request of the property owner.
2. Delineate concentrations of lead above 80 mg/kg both vertically and horizontally in areas outward to at least double the sampling areas of the Northern and Southern Assessment Areas.

This Revised Off-Site Soil Sampling Work Plan Addendum (Addendum) addresses DTSC's sampling requests and complies with the comments and directives set forth in DTSC's June 25, 2014 conditional approval letter.

The Addendum describes the proposed additional soil sampling to be conducted on the properties previously sampled during the November 2013 sampling event to delineate the lead concentrations both horizontally and vertically. The Head Start school in Salazar Park will also be sampled to provide additional information on the composite sample results.

To extend the sampling to areas at least double in size of the Northern and Southern Assessment Areas, the Addendum calls for sampling on a grid pattern over two areas, each approximately one square mile area in size, situated to the north and to the south of the Exide facility. Multiple composite samples will be collected on residential properties in the vicinity of the defined grid

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nodes. This more systematic approach to sampling over a larger area will assist in understanding the spatial relationship between soil lead concentrations and the Exide facility. Schools and children's play areas within public parks that fall within the expanded sampling areas will also be sampled. Figure 1 shows the original Assessment Areas, Salazar Park and the expanded areas to be sampled as part of this Addendum.

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2.0 BACKGROUND

In November 2013, Exide Technologies, through its contractors, Advanced GeoServices Corp. and ENVIRON International Corporation, with oversight by the DTSC, conducted soil sampling at residential properties in the vicinity of the Exide Technologies facility in Vernon, California, at two area schools and in a background area located about 14 miles to the south of the facility. The purpose of the sampling was to determine whether off-site residential soils had concentrations of selected constituents that were greater than the Background Area or residential screening values.

Sampling took place in areas where previous air modeling indicated the maximum exposure from lead and arsenic emissions on an individual resident; these areas were designated as the Northern and Southern Assessment Areas. Nineteen properties were sampled in the Background Area, nineteen properties were sampled in the Northern Assessment Area and twenty properties were sampled in the Southern Assessment Area. Samples were taken from three depth intervals, 0 to 1 inch, 1 to 3 inches and 3 to 6 inches below the ground surface, and the samples analyzed for up to 24 constituents selected by DTSC. The laboratory analysis showed that, while the source is undetermined, lead was generally the only constituent present above the Background Area concentration and the DTSC soil screening levels in the Assessment Areas. Consequently, further analysis on the residential soils is for lead only. Other observations that pertain to the design of the extended sampling program are:

- The lead concentrations overall did not decrease over the three depth intervals sampled. Sampling to establish the vertical delineation of lead concentrations above 80 mg/kg on the properties previously sampled within the Assessment Area will consist of discrete sampling the 0 to 1 inch, 1 to 3 inch, 3 to 6 inch, 6 to 12 inch and 12 to 18 inch depth intervals at the subsample locations. Five additional discrete sample locations will be added from the general yard area and samples will be collected at the five intervals discussed above. Additional discrete samples will also be taken on the property as discussed below.

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- Samples will be collected within the drip zone of the house to provide additional information relating to lead based paint effects consistent with the USEPA Guidance "Superfund Lead Contaminated Residential Sites Handbook" (OSWER 9285.7-50, August 2003) (Handbook) as discussed further in Section 3.1.2. Samples will also be taken at the point of discharge onto soil or grass if a downspout is present on the house
- For sampling new properties outside the Initial Northern and Southern Assessment Areas but within the Expanded Assessment areas, composite sampling will be conducted in a manner similar to the previous sampling with the addition of samples from the 6 to 12 inch and 12 to 18 inch depth intervals. However, multiple composite samples will be taken in accordance with the Handbook. These samples will be composited by depth interval but an aliquot of the subsample will be retained as a discrete sample if further analysis is warranted. Details of the proposed sampling are discussed in Section 3.4.

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3.0 SAMPLE LOCATION AND FREQUENCY

The approach to the sampling and data gathering differs between the previously sampled properties in the Northern and Southern Assessment Areas and the northern school location within Salazar Park, and new properties that will be sampled within the expanded sampling area. The sampling within each area is discussed in the following sections.

3.1 PREVIOUSLY SAMPLED PROPERTIES IN THE NORTHERN AND SOUTHERN ASSESSMENT AREAS

The purpose of conducting additional sampling on the previously sampled properties is to delineate the lead concentrations horizontally and vertically on the properties and to gather information that relates to potential lead based paint impacts.

3.1.1 Vertical and Horizontal Delineation

At the previously sampled properties in the Northern and Southern Assessment areas, discrete samples will be taken to horizontally and vertically delineate the lead concentrations on the property. Since the soil lead concentrations did not decrease markedly in the uppermost 6 inches, additional samples will be collected at 6 to 12 inch and 12 to 18 inch depth intervals for a total of 5 depth intervals at each discrete sample location.

Five of the locations of the discrete samples will be co-located approximately 12 inches from the previous subsample locations as shown on the property sampling sketches provided in Appendix B of the Report. Five additional discrete sampling locations will be added and evenly distributed throughout the yard adhering to the exclusionary criteria laid out in the November 2013 Work Plan. At the sampling locations, the existing turf, if any, will be removed prior to soil collection and replaced following backfill with new clean topsoil.

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The samples will be collected using hand augers. The soil from the samples will be placed in glass jars for submission to Eurofins Calscience Environmental Laboratories (Eurofins Calscience) of Garden Grove, California. Samples will be analyzed for lead. Twenty percent (20%) of the samples from the 0 to 1 inch and 1 to 3 inch depth intervals will be designated for sieving by the laboratory using a #60 sieve. The fine fraction will be analyzed for lead in addition to the total fraction.

Additionally, if a property owner within the Initial Assessment Areas requests sampling on their property and signs an access agreement, Exide will sample the property consistent with the above approach.

3.1.2 Drip Zone Sampling

Drip zone samples will be taken in accordance with the Handbook, between 6 and 30 inches from each side of the main structure (i.e., the house) on the property where extensive pavement such as a parking area or driveway does not extend to the structure. If no soil is present, then no sample will be taken on that side of the house. However, discrete sampling, instead of composite sampling, will be performed for the five intervals (0 to 1 inch, 1 to 3 inch, 3 to 6 inch, 6 to 12 inch and 12 to 18 inch). If a downspout is present on the property and the downspout discharges onto soil, discrete samples will be taken at the point of discharge. If multiple downspouts are present, the downspout samples will be taken at the downspout that collects from the largest roof area and discharges to grass or soil. If loose paint chips are observed on the ground surface, then a sample of the chips will be collected. Samples will be analyzed for lead. Twenty percent (20%) of the soil samples from the 0 to 1 inch and 1 to 3 inch depth intervals will be designated for sieving by the laboratory using a #60 sieve. The fine fraction will be analyzed for lead in addition to the total fraction.

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3.1.3 Property Condition Assessment

Advanced GeoServices will perform a visual inspection of the property buildings. The inspection will include the condition of the painted surfaces and be designated as intact or in poor condition.

The type of roof on the property and drainage pattern will be noted as possible on the inspection report or the property sketch. Bare soil areas will also be noted on the property sketch as information pertinent to the assessment of potential interim measures.

3.1.4 Access

Advanced GeoServices has signed access agreements from most of the original 39 property owners. Based on information obtained from the Los Angeles County Tax Assessor's Office, it appears some tenants have signed for the owners. Advanced GeoServices will send out certified letters to property owners requesting access for the tenant-signed properties. The remaining property owners, verified by the tax assessor review, will be notified of the proposed additional sampling by telephone or letter.

3.2 ADDITIONAL PROPERTY SAMPLING REQUESTS

During the sampling event, additional properties within the Initial Northern and Southern Assessment Areas will be sampled if the property owner requests. Exide will provide a sampling access form in English and/or Spanish as needed. Once the owner has signed the access agreement, the property will be sampled consistent with Section 3.1.1 above.

3.3 SALAZAR PARK SCHOOL SAMPLING

As required by DTSC, Salazar Park in the vicinity of the Head Start school will be sampled to determine the lead concentrations vertically. Ten discrete sample locations will be designated in the vicinity of the Head Start School, five of which will be proximate to the previous subsample locations. Samples will be collected at the five proscribed depth intervals. Samples will be

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analyzed only for lead. Twenty percent (20%) of the samples from the 0 to 1 inch and 1 to 3 inch depth intervals will be designated for sieving by the laboratory using a #60 sieve. The fine fraction will be analyzed for lead in addition to the total fraction.

3.4 EXPANDED ASSESSMENT AREAS

To obtain a broader picture of soil lead concentrations and distributions outside the initial Assessment Area, samples will be taken from residential properties on a grid pattern extending outward from the Northern and Southern Assessment Areas as shown on Figures 2A and 2B. One property will be sampled proximate to each grid node for a total of 84 additional properties being sampled in the north and 62 additional properties in the south. If a grid node falls on a non-residential property or impervious surface area, the sample location will be shifted to a nearby residential property. The initial grid spacing will be 500 feet extending outward from the Assessment Area and will increase to 1000 feet over the rest of the designated area. The approximate area is 1.1 square miles for the Expanded Northern Assessment Area and 0.8 square miles for the Expanded Southern Assessment Area. In addition, public and private K-12 schools and play areas within public parks will be sampled as part of the expanded sampling program.

If property owners within the Expanded Assessment Areas request to have their property sampled, Exide will review the location and if it falls proximate to a designated location, Exide will substitute an existing location with the requested location as shown on Figures 2A and 2B. The sampling would follow the composite sampling protocols discussed below.

The samples will be taken in general accordance with the November 15, 2013 Work Plan and the Handbook. Ten, five (5) point composite samples will be taken over the yard area of the property. Five sample locations will be in the frontyard and five sample locations in the backyard as applicable for each individual property. Samples will be collected at the same five depth intervals using the same exclusionary criteria specified in the Work Plan; however, a vertical split of each subsample will be taken and retained as a discrete sample in the event that future analysis is required. The samples will be analyzed for lead only. Ten percent (10%) of the samples from the residential properties and 20% of the samples from schools and parks from

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the 0 to 1 inch and 1 to 3 inch depth intervals will be designated for sieving by the laboratory using a #60 sieve; the fine fraction of these designated samples will also be tested for lead in addition to the total fraction.

Additional composite samples will be collected from the drip zone by taking samples from the depth intervals along each side of the structure where soil is present. If distinct play areas and vegetable gardens are present, they will be sampled using three-point composite sampling techniques. Discrete samples of these composites will be retained. Unpaved driveways are included in the exclusionary criteria established and approved as part of the November 15, 2013 Work Plan and will not be sampled. Five composite depth intervals will be collected and analyzed for lead (0 to 1 inch, 1 to 3 inch, 3 to 6 inch, 6 to 12 inch and 12 to 18 inch).

Access will be obtained by obtaining the owner's name and mailing address from the Los Angeles County Tax Assessor's office. Exide will send certified letters through the United States Postal Service with Return Receipt service. The sampling access agreements will be the same letters used previously for the Initial Assessment Areas and the DTSC Fact Sheet attached.

3.4.1 Schools and Parks

Exide will determine the schools (K-12) and parks with play areas within the Expanded Assessment Areas and solicit access for sampling. At this time, Exide has identified thirteen (13) schools with Salazar Park designated as a school. Five (5) sampling locations will be determined in the field and will target grassy or bare soil areas in play areas. If no soil areas exist in the play areas, the sample locations will be moved to other areas of the school property.

Exide has determined six (6) parks within the Expanded Assessment Areas. Children's play areas will be targeted for sampling within the designated parks. Play areas include playgrounds, recreational equipment (e.g., slides, swings, etc.) or other areas determined to be specific for young children. Exide will review the parks with DTSC and if no play areas with soil exist within the parks, no sampling will occur.

Both schools and parks will be sampled consistent with the schools previously sampled as part of the Work Plan with two depth intervals added. Five composite samples at the designated depth intervals (0 to 1 inch, 1 to 3 inch, 3 to 6 inch, 6 to 12 inch and 12 to 18 inch) will be collected and analyzed for lead. Discrete aliquots will be archived for future use as necessary.

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4.0 SAMPLE DESIGNATION

Samples will be identified by the area in which the property is located or along the designated transect as provided below:

- Discrete samples from properties within the Intitial Northern and Southern Assessment Areas will be labeled with the property designation [e.g. SS-MEIR-N-(01 through 19)] followed by the sample number with D starting with 1D and then the bottom depth of the sample. For example, SS-MEIR-N-12-3D-6 would designate discrete sample location #3 taken from the 0 to 6 inch depth interval at property SS-MEIR-N-12.

  - Drip Zone samples will follow the above labeling system and be designated as SS-MEIR-N-(01-through 19) DZ-(01 through 4) and SS-MEIR-S-(01-through 21) DZ-(01 through 4). The downspout location would be designated with a DS. Downspout locations will also be at the five depth intervals.

- Labeling for properties outside the Initial Northern and Southern Assessment Areas but within the Expanded Areas will be designated as follows:

  - For the Northern Expanded Areas the property designation will be ENA-(01 through XX). Each composite depth interval for the frontyard will be designated as FC or BC and then the bottom depth of the sample. For example, ENA-01-FC-1 would designate the first property sampled within the frontyard taken from the 0 to 1 inch depth interval. Followed by ENA-01-FC-3 which would designate the first property sampled within the frontyard taken from the 1 to 3 inch depth interval.
  - Expanded Southern Assessment Areas properties would be labeled with an ESA designation.

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- Dripzone samples will follow the designation ENA-01-DZ-(1, 3, 6, 12, and 18).
- Composite sampling of Play Areas (PA) and Vegetable Gardens (VG), if applicable, would be labeled as follows. For example, ENA-01-PA-1 would designate a composite sample in a play area at the 0 to 1 inch depth. Additionally, a downspout location would be designated as DS.

• Labeling for schools and parks within the Assessment Areas will use the name of the School or Park, the sample location and the depth of the discrete sample. For example the school samples will be designated as follows:

- Example School-3 will designate the 1-3 inch depth interval of the composite samples.
- Example Park-6 will designate the 3 to 6 inch depth interval of the composite samples

5.0 SAMPLING EQUIPMENT AND PROCEDURES

The equipment and procedures utilized for soil sampling will be consistent with the equipment discussed in Section 5.0 of the Work Plan.

Sampling equipment will be decontaminated between depth intervals on discrete sample locations or before using the equipment at another location. Decontamination of equipment will be performed consistent with Section 5.0 of the Work Plan.

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6.0 SAMPLE PREPARATION AND ANALYSIS

Sample homogenization will be performed by Eurofins Calscience in accordance with their standard procedures. Eurofins Calscience will randomly select one sample from each area for Matrix Spike/Matrix Spike Duplicate analysis. Standard, Level 1 electronic data packages will be provided by the laboratory. All samples will be retained by the laboratory until the data evaluation is complete, and the samples will not be discarded without DTSC concurrence.

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7.0 QUALITY ASSURANCE/QUALITY CONTROL

To evaluate if field or laboratory conditions may be impacting analytical samples, equipment blanks, matrix spike/matrix spike duplicate, and field duplicate samples will be utilized and evaluated as part of the data review.

7.1 FIELD DUPLICATE SAMPLES

One blind field duplicate sample will be collected for each property to allow for the determination of sampling precision of the sampler and the analytical laboratory by obtaining a second core at the sample location when discrete samples are being collected or from each subsample location at a randomly selected property when composite samples are collected. The duplicate cores will be prepared in the same manner as other samples for each depth interval and given the sample designation for next sequential property number. One duplicate will be obtained for the school property.

7.2 EQUIPMENT BLANKS

An equipment blank will be prepared when a particular piece of sampling equipment was employed for sample collection and subsequently decontaminated in the field for use in additional sampling. The equipment blank will be composed in the field by collecting, in the appropriate pre-preserved container, a blank water rinse from the equipment (e.g., split core sampler) after execution of the last step of the field decontamination protocol. One equipment blank will be collected daily.

7.3 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

The laboratory will split Matrix Spike/Matrix Spike duplicates (MS/MSD) from one (1) sample for every 100 samples collected and analyze the sample for the same parameters as the parent sample. Each sample will be labeled with the sample identification as the original sample, designated as MS or MSD samples. MS/MSD samples determine accuracy by the recovery rates

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of the compounds added by the laboratory (the MS compounds are defined in the analytical methods). The MS/MSD samples also monitor any possible matrix effects specific to samples collected from the Site and the extraction/digestion efficiency. In addition, the analyses of MS and MSD samples check precision by comparison of the two spike recoveries.

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8.0 DATA ANALYSIS AND REPORTING

Following receipt of the electronic data packages, a Level 1 review will be conducted which includes checks on holding times, blank contamination, MS/MSD results and duplicate analysis and completion of the associated checklist. The results will be compiled into Excel spreadsheets for data presentation and analysis.

The analytical results, data analysis and conclusions will be presented in a Report on Expanded Soil Sampling for DTSC's review.

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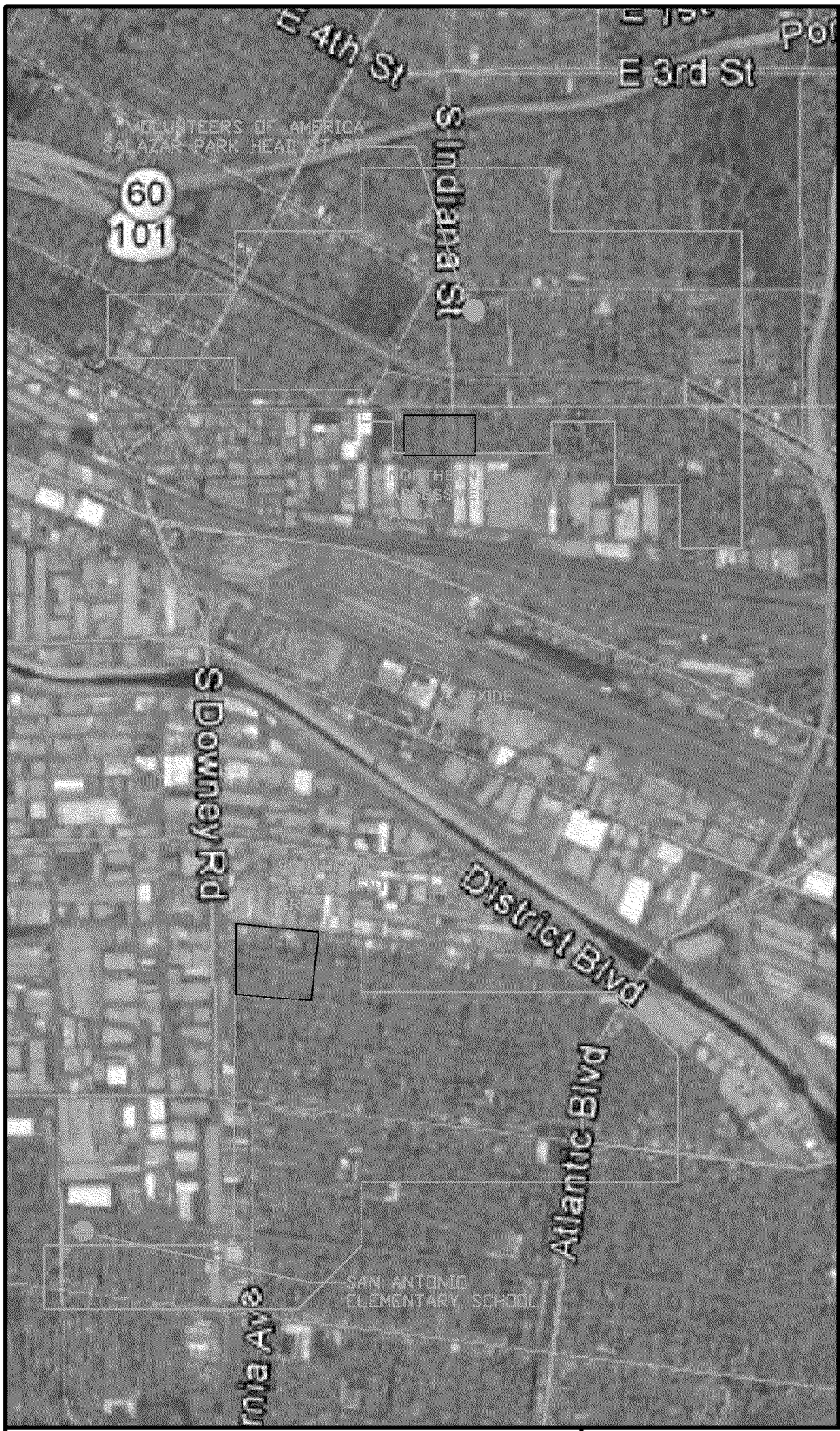
FIGURES



LEGEND:

NORTHERN AND SOUTHERN ASSESSMENT AREAS

EXPANDED NORTHERN AND SOUTHERN ASSESSMENT AREA PERIMETERS

GRAPHIC SCALE

0 1250 2500 5000

(IN FEET)
1 inch = 2500 ft.

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NORTHERN AND SOUTHERN
ASSESSMENT AREAS LOCATION PLAN
OFF-SITE SOIL SAMPLING WORK PLAN ADDENDUM

PROJECT ENGINEER:	BLF	SCALE:	1" ~ 2500'
CHECKED BY:	KO	PROJECT NUMBER:	2013-3007
DRAWN BY:	KEZ	DATE: 3/21/14	FIGURE: 1

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LEGEND

SOIL SAMPLING LOCATION
NORTHERN 63 TOTAL

DTSC PROPOSED
LOCATIONS 21 TOTAL

GRAPHIC SCALE

0 500 1000 2000

(IN FEET)
1 inch = 1000 ft.

NORTHERN ASSESSMENT AREA
PROPOSED SAMPLING LOCATIONS

PROJECT MANAGER:	PGS	SCALE:	1" = 1000'
CHECKED BY:	BLF	PROJECT NUMBER:	2013 3007
DRAWN BY:	KO	DATE:	

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OFF-SITE SOIL SAMPLING
WORK PLAN ADDENDUM

EXIDE TECHNOLOGIES
VERNON, CALIFORNIA

Figure
2A

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LEGEND

SOIL SAMPLING LOCATION
SOUTHERN 45 TOTAL

DTSC PROPOSED
LOCATIONS 17 TOTAL

GRAPHIC SCALE

0 500 1000 2000

(IN FEET)
1 inch = 1000 ft.

SOUTHERN ASSESSMENT AREA
PROPOSED SAMPLING LOCATIONS

PROJECT MANAGER:	PGS	SCALE:	1" = 1000'
CHECKED BY:	BLF	PROJECT NUMBER:	2013 3007
DRAWN BY:	KO	DATE:	

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OFF-SITE SOIL SAMPLING
WORK PLAN ADDENDUM

EXIDE TECHNOLOGIES
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Figure
2B

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