



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

Prepared for:
**EXIDE TECHNOLOGIES
Vernon, California**



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Prepared For:

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Prepared By:

**ADVANCED GEOSERVICES
West Chester, Pennsylvania**

**Project No. 2013-3007-07
March 21, 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. 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 Off-Site Soil Sampling Work Plan Addendum (Addendum) is being submitted to DTSC to address the requirements of the DTSC review.

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 at the subsample locations previously sampled to provide additional information on the composite sample results.

To delineate the areas with residential lead concentrations above 80 mg/kg, 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. Composite samples will be collected in general accordance with the November 15, 2013 Work Plan on residential properties in the



vicinity of the defined grid 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. Figure 1 shows the original Assessment Areas, Salazar Park and the expanded areas to be sampled as part of this Addendum.



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 lead was the only constituent present above the Background Area concentration and the DTSC soil screening levels in the Assessment Areas on a consistent basis. 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 6 inch, 6 to 12 inch and 12 to 18 inch depth intervals at the subsample locations. Additional discrete samples will also be taken on the property as discussed below.
- Samples will be collected within the drip zone of the house to provide additional information relating to lead based paint effects consistent with the Superfund Lead-Contaminated Residential Sites Handbook (EPA, 2003).



- For sampling new properties, sampling will be conducted in general accordance with the November 15, 2013 Work Plan, however, the first two depth intervals will be combined into a single 0 to 3 inch depth interval since there was little difference between the 0 to 1 inch and 1 to 3 inch depth interval results in the initial sampling. A 3 to 6 inch depth interval sample will be taken for vertical delineation. 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.



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. 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 establish the horizontal and vertical limits of lead concentrations above 80 mg/kg 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 above 80 mg/kg on the property. Since the soil lead concentrations did not decrease markedly in the uppermost 6 inches, the first depth interval to be sampled will be 0 to 6 inches followed by additional samples at 6 to 12 inches and 12 to 18 inches.

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. An additional sample will also be taken at the downspout from the roof if one is present. At the sampling locations, the existing turf, if any, will be removed prior to soil collection and replaced following backfill with new clean topsoil. Additional samples may also be collected in the yards if there is sufficient grass or bare soil areas between the previous sample locations and the perimeter of the property (i.e., more than 10 feet).



The samples will be collected using a hand auger or split core sampler based on the geotechnical characteristics of the soils. In sandy soils, it is anticipated that a split core sampler may be used while a hand auger will be used to collect the remaining samples. The soil from the samples will be placed in glass jars for submission to Calscience Environmental Laboratories (Calscience) of Garden Grove, California.

3.1.2 Drip Zone Sampling

Drip zone sampling will be conducted at two feet from the existing structures as grassy or bare areas will allow. A minimum of two discrete samples will be collected from 0 to 6 inches below the ground surface up to a maximum of four discrete samples. Samples will be analyzed for lead.

3.1.3 Lead Based Paint Inspections and Property Condition Assessment

An exterior lead-based paint inspection will be conducted on each property that was previously sampled in the Northern and Southern Assessment Areas. The inspections will be performed by California Department of Public Health (CDPH)-certified lead inspectors/assessors utilizing an X-Ray Fluorescence (XRF) instrument on all exterior wall surfaces, doors, window frames, soffits, and other painted structures on the property. A report will be generated for each property which will include the credentials of the inspector, the XRF results and photos of any surface which had a reading above the residential standard of 0.7 mg/cm^2 , the CDPH residential standard.

Additionally, the inspection report will include the condition of the painted surfaces and be designated intact or poor condition. Per the California Code of Regulations Title 17, A Lead Hazard Evaluation Report must be submitted to the CDPH within thirty day of completion regardless of whether any lead-based paint was determined to exist on the property.



The type of roof on the property will be noted 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.

3.1.5 Demographic Assessment

During the sampling event, the property owner will be asked to provide information about the occupants of the residence in order to determine the number of children under six years of age, pregnant women and women of child bearing age. This information will be retained for risk assessment purposes, and to establish whether interim measures are warranted with respect to the property. The questionnaire will be developed and sent to DTSC for approval.

3.2 ADDITIONAL PROPERTY SAMPLING REQUESTS

During the sampling event, additional properties within the initial Assessment Areas will be sampled if the property owner requests. This sampling will be consistent with the November 15, 2013 Work Plan sampling protocols which consist of 5-point composite sampling of the three depth intervals (0 to 1 inch, 1 to 3 inch and 3 to 6 inch). Discrete samples from the intervals will be retained in the event that further analysis of the soil samples is required. Samples will be analyzed for lead.

3.3 SALAZAR PARK SCHOOL SAMPLING

As required by DTSC, Salazar Park will be sampled to determine the vertical limits. As only one composite interval (1-3") was above 80 mg/kg and bounded vertically, discrete sampling will be performed at each prior location sampled to the same depth intervals (0 to 1 inch, 1 to 3 inch and 3 to 6 inch). Samples will be analyzed only for lead.



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 Figure 2. One property will be sampled proximate to each grid node for a total of 59 additional properties being sampled in the north and 38 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.

The samples will be taken in general accordance with the November 15, 2013 Work Plan. Five (5) point composites will be taken over the yard area of the property 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.

Access will be obtained by going door to door with a bi-lingual field representative to identify owner occupied properties in the vicinity of the grid node. The field crew will use same access forms as were used in the November 2013 sampling event.



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 original Northern and Southern Assessment Areas will be labeled with the property designation [e.g. SS-MEIR-N-(1 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-(1-through 19) DZ-(1 through 4) and SS-MEIR-S-(1-through 21) DZ-(1 through 4).
- Labeling for composite samples taken from properties within the Expanded Assessment Areas would continue the previous labeling system starting with SS-MEIR-N-21 in the north and SS-MEIR-S-22 in the south. If additional property owners within the original Assessment Areas request sampling, those samples would also be labeled as a continuation of the previous labeling system. Discrete samples that are archived would be labeled in a similar fashion to the previous bullet.



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.



6.0 SAMPLE PREPARATION AND ANALYSIS

Sample homogenization will be performed by Calscience in accordance with their standard procedures. 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.



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 group of twenty samples collected 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 for every twenty samples collected.

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 20 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



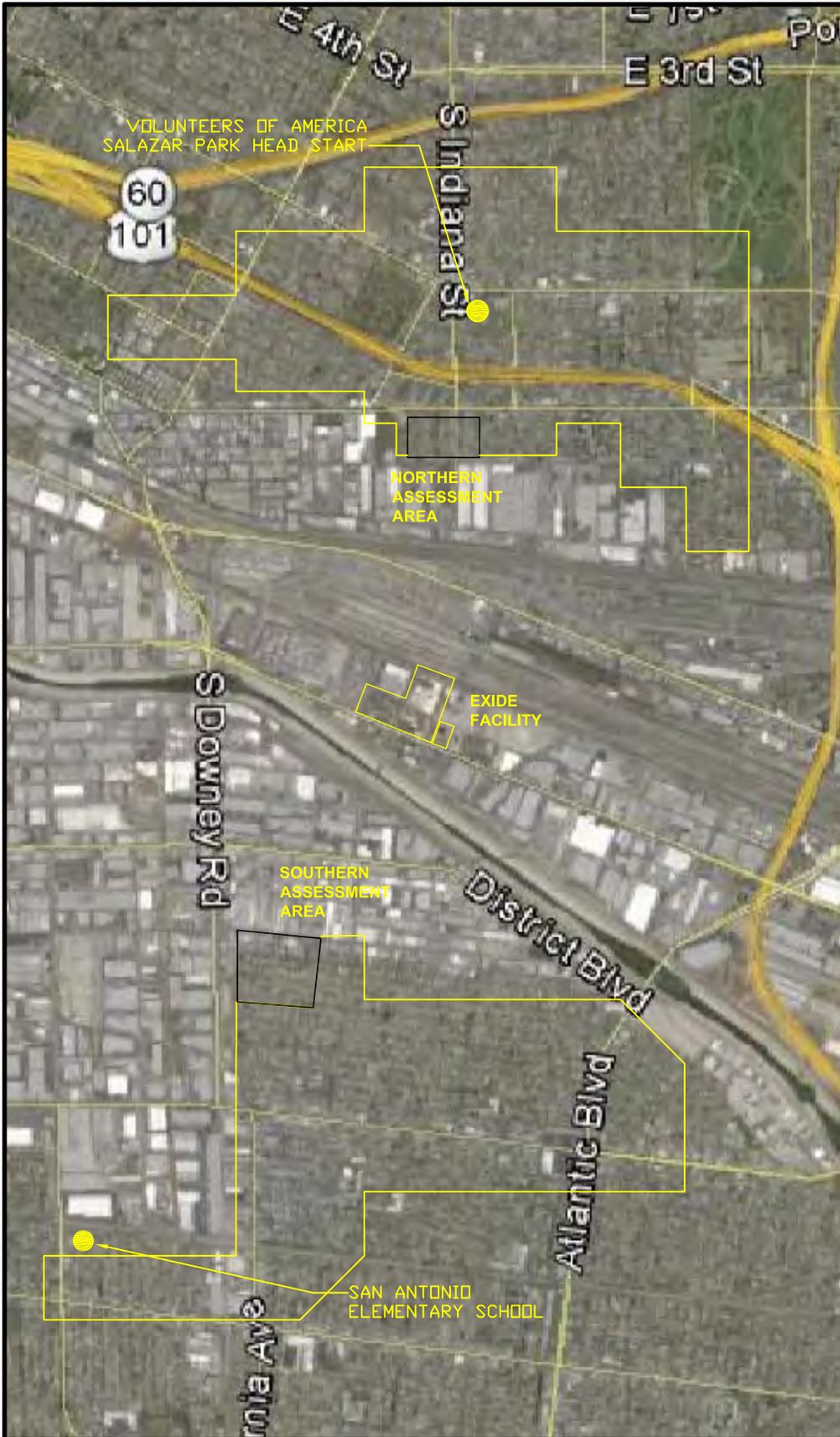
of the compounds added by the laboratory (the MS compounds are defined in the analytical methods). The MS/MSD samples also monitor any possible matrix effects specific to samples collected from the Site and the extraction/digestion efficiency. In addition, the analyses of MS and MSD samples check precision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



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.



LEGEND:

NORTHERN AND SOUTHERN ASSESSMENT AREAS

EXPANDED NORTHERN AND SOUTHERN ASSESSMENT AREA PERIMETERS



GRAPHIC SCALE



(IN FEET)
1 inch = 2500 ft.

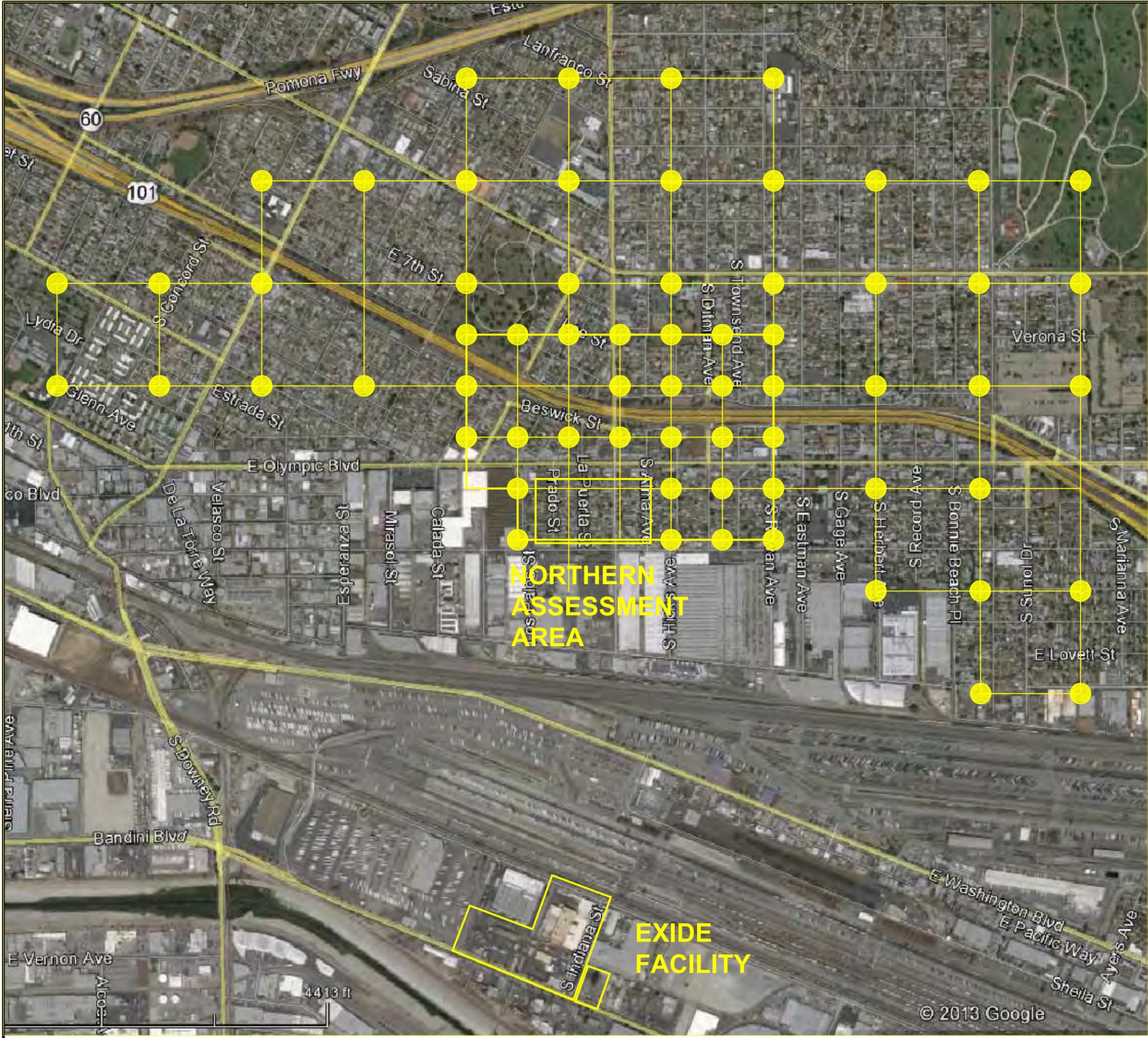


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**NORTHERN AND SOUTHERN ASSESSMENT AREAS LOCATION PLAN
OFF-SITE SOIL SAMPLING WORK PLAN ADDENDUM**

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

F:\Projects\2013\20133007 - Exide Vernon Interim Status (Post BR)\Cad\dwg\2013-3007-06.dwg



LEGEND

● SOIL SAMPLING LOCATION
NORTHERN 64 TOTAL



GRAPHIC SCALE



(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

F:\Projects\2013\201303007 - Exide Vernon Interim Status (Post BR)\Cad\dwg\2013-3007-06.dwg



LEGEND

- SOIL SAMPLING LOCATION
- SOUTHERN 45 TOTAL



GRAPHIC SCALE



(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:	March 21, 2014

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WORK PLAN ADDENDUM

EXIDE TECHNOLOGIES
VERNON, CALIFORNIA

Figure

2B