



February 27, 2015

Paul Cho, P.G.

Water Resources Control Engineer
California Regional Water Quality Control Board, Site Cleanup Unit IV
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Subject: Post Excavation Soil Gas Sampling Plan and Post Excavation Treatment Cell
Soil Sampling Work Plan for the Defense Fuel Support Point Norwalk
15306 Norwalk Boulevard, Norwalk, California
(SCP NO. 0286A, Site ID NO. 16638)

Dear Mr. Cho:

On January 7, 2015, the Los Angeles Regional Water Quality Control Board (LARWQCB) provided conditions (and related information requests) that the Defense Logistics Agency Energy (DLA Energy), and Source Group, Inc. (SGI), would be required to adhere to associated with the approved Waste Discharge Requirement (WDR) for excavation and soil treatment at Defense Fuel Support Point (DFSP) Norwalk. On January 16, 2015, SGI on behalf of DLA Energy provided a clarification letter regarding Item 3 (confirmation sampling of treated soil) provided in the January 7, 2015, RWQCB correspondence. On February 13, 2015, SGI, again on the behalf of DLA Energy, provided a response to all remaining items. Items 4 and 6 required submitting work plan(s) associated with post excavation soil gas sampling and post excavation treatment cell soil sampling. The attached Treatment Cell Closure Soil Sampling and Post Excavation Soil Gas Sampling Work Plan for the Defense Fuel Support Point Norwalk (Work Plan) is one Work Plan that addresses both sampling requirements.

Though this Work Plan is being submitted now; it is anticipated that data and observations obtained during the excavation and treatment process as well as input from the Regional Water Quality Control Board, after excavation completion, may reveal additional information that would require modification to the Work Plan for each of the sampling efforts.

If there are any questions regarding the information provided please call me at (562) 597-1055.

Sincerely,

Ken Wall
Senior Project Engineer
The Source Group, Inc

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Signal Hill, California 90755

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Ec: Mr. Everett Bole, DLA Energy
Mr. Neil Irish, SGI
File: DFSP Norwalk – 04-NDLA-007

Attachment: Treatment Cell Closure Soil Sampling and Post Excavation Soil Gas Sampling
Work Plan

Work Plan for DFSP Norwalk Treatment Cell Closure and Post Excavation Soil Gas Sampling

DFSP Norwalk
Norwalk, California

04-NDLA-007

Prepared For:



Defense Logistics Agency - Energy
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Prepared By:



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February 27, 2015

Prepared By:

A handwritten signature in blue ink, appearing to read "Chris Baker".

Chris Baker
Staff Geologist

Reviewed By:

A handwritten signature in blue ink, appearing to read "Ken Wall".

Ken Wall
Senior Project Engineer

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1.0 INTRODUCTION

On behalf of our client, Defense Logistics Agency - Energy (DLA Energy), The Source Group, Inc. (SGI) is submitting this work plan for post excavation treatment cell soil sampling for cell closure and site-wide soil gas surveying. This document was requested by Los Angeles Regional Water Quality Control Board (LARWQCB), via correspondence dated January 7, 2015, which provided conditions and related information requests associated with the Waste Discharge Requirement (WDR) for the former Defense Fuel Support Point (DFSP) Norwalk facility (site).

Petroleum contaminated soil is present at numerous locations throughout the 50 acre DFSP Norwalk facility. The objective of the planned remedial activities are to reduce the concentrations of petroleum hydrocarbons and related compounds that are present in vadose zone soil in order to facilitate site redevelopment and to accelerate the remediation of the underlying groundwater. To achieve this objective, contaminated soil will be excavated, treated on site using biologic methods, and reused as cleaned fill once cleanup targets have been met. Upon completion of all excavations, backfilling and remedial activities, exploratory trenching and confirmation sampling will be conducted in each remediation cell where excavations and/or treatment piles were housed and completed.

There are two fundamental documents that support this plan:

1. The Soil Management Plan (SMP); SGI 2014 and,
2. The Field Sampling and Analysis Plan (FASP); SGI 2015

2.0 SCOPE OF WORK

In general, the scope of work is to characterize the remediation cells to verify there is no remaining contamination either from a previous release or as a result of using the cell for treatment. Soil gas sampling will be conducted to verify no soil gas issues remain after the completion of the site-wide excavation. Closure status of remediation cells; in conjunction with the soil gas survey will contribute to total site closure for soil between 0 and 10 feet allowing for transfer of the site property.

3.0 PREPARATORY ACTIVITIES

3.1 Site Specific Health and Safety Plan

SGI has prepared a Site Health and Safety Plan (HASP) on behalf of DLA-Energy for the closure project. This HASP addresses site safety issues associated with planned activities at the facility to be performed by SGI personnel and its subcontractors as part of the closure project. The primary purpose of this HASP is to provide SGI and subcontractor personnel with an understanding of the potential physical and chemical hazards that exist or may arise during site activities. Additionally, the information contained in the HASP will define the safety precautions necessary to respond to such hazards should they occur.

The primary objective of the HASP is to ensure the well being of all field personnel and visitors to the Site. In order to accomplish this, project staff and approved subcontractors shall acknowledge and adhere to the policies and procedures established in the HASP. The HASP will be maintained on the jobsite at all times.

3.2 Safety Meetings

Prior to initiating the work, SGI will ensure that all provisions of the HASP are in place and all training requirements have been met. Tailgate safety meetings shall be held at the start of each workday, shift, or task change. The meetings are usually conducted by the Project Manager or designated Site Safety Officer on site. The meetings shall review the planned work activities for the day, discuss and resolve the risks and mitigations, discuss any health, safety and environmental concerns, and raise the consciousness of each worker before they start work. The objective of the daily tailgate safety meeting is to verify that all site personnel involved in a work activity are competent and correctly prepared for the work they will perform, and verify that workers have a clear understanding of the scope of work, hazards, controls, and mitigations.

4.0 FIELD ACTIVITIES

4.1 Soil Gas Probe Installation and Sample Collection

A State-Certified laboratory will perform sampling and analyses. The objective is to characterize soil gas conditions upon completion of the site-wide excavations. The Field Sampling and Analysis Plan (FASP);

4.1.1 Installation

At a total of 5 locations per basin, a shallow and deep temporary soil gas probe will be installed. See Figure 1. A temporary soil gas probe will be installed in the center of each basin, and in each of the southern and northern corners. The borings will be advanced to an approximate total depth of 10 feet bgs, and will be completed through the use of a truck mounted Strataprobe® direct push rig supplied and operated by H&P Mobile Geochemistry, Inc. Temporary soil gas probes will be nested and installed at the 7- and 10-foot intervals at each location. The temporary soil gas sampling probes will consist of sampling points surrounded by a sand pack about 0.5 foot thick, connected to Teflon® or Nylaflow® tubing that extends to the surface. Hydrated granular bentonite and/or grout will be placed atop the sandpack followed by bentonite grout up to the shallower probe or to the surface.

4.1.2 Purge Volume

To ensure collection of a representative soil gas sample from temporary probes, discrete volumes of soil gas will be purged to rid the tubing/casing of atmospheric air, thus allowing subsurface air to enter the probe. The volume of gas removed will be determined by 1) the volume of tubing/casing and sampling vessel employed, 2) the rate or flow of gas being extracted, and 3) the analytical results of the purge volume tests. One purge volume is considered the summation of the volume of the sample container, internal volume of tubing used, volume of air in the probe/well casing, and the annular space (sand pack) around the probe tip (or screened interval).

Purge-volume tests of one, three, and seven volumes will be conducted at the first temporary point location to determine the purge volume which shall be applied at all subsequent sampling points. A median depth (8 feet bgs) temporary soil gas probe will be used for the purge test. If VOCs are not detected in any of the purge-volume tests, a default of three volumes will be applied to all samples.

Purge and sample rates will be limited to between 100 to 200 milliliters per minute to minimize potential stripping of volatile components, prevent ambient air from diluting samples, and to reduce the variability of purging rates.

The vapor monitoring wells will be purged of one full volume then sampled.

4.1.3 Leak Test

At every temporary soil gas probe, prior to the collection of a soil gas sample, difluoroethane or other compound accepted for use as a leak check detector will be applied to the tubing. All soil gas samples collected for analysis within the mobile laboratory will subsequently be analyzed for the detector compound.

4.1.4 Sample Collection and Analysis

After purging the tubing or casing and conducting the leak test, soil gas samples will be collected in syringes to prevent the degradation of light-sensitive or halogenated VOCs (e.g. vinyl chloride). The syringes will be leak-checked before each use. All vapor samples collected for on-site analysis within syringes will be analyzed by the on-site mobile laboratory by GC/MS (8260B for VOCs including GRO and oxygenates, and 8015B for methane). A method detection limit of 1 microgram per liter ($\mu\text{g/L}$) will be achieved by the mobile laboratory for the majority of VOC analytes included within the EPA Method 8260B analysis. Samples will not be chilled and on-site samples will be analyzed within 30 minutes of sample collection. Samples that are collected for analysis in a fixed-base laboratory will be analyzed within 72 hours. If condensation is observed in any sample, the sample will be discarded and a new sample will be collected.

4.1.5 Quality Control

Confirmation soil gas samples, analyzed by EPA Method TO-15, will be collected in Summa™ canisters supplied by the fixed-base analytical laboratory. Confirmation sampling locations will be selected for TO-15 analysis: one sampling location per exploratory trench. When filling the Summa™ canisters, a flow regulator will be placed between the probe and the canister to assure an appropriate flow rate (100 to 200 milliliters per minute) during sample collection. All sampling containers will be certified clean by the analytical laboratory prior to use.

Duplicate soil gas samples will be collected on a daily basis (one per day of sampling). These samples will be collected in a separate sample container directly after the original sample is taken. Duplicates will be collected at the same location and depth as the original sample. As stated previously, duplicate samples will be denoted with the letter "D" following the sample identification

4.2 Soil Sample Collection

The number and location of soil samples within in each site specific treatment cell area will be identified on a figure and provided to the LARWQCB. Upon approval, soil confirmation sampling will be performed as prescribed within this section.

During the installation of temporary vapor probes, soil samples will be collected at the 5 and 10 foot intervals at each location using a truck mounted Strataprobe® direct push rig supplied and operated by H&P Mobile Geochemistry, Inc. Samples will be collected in acetate sleeves for sample examination. Soil samples will be visually classified in accordance with the Unified Soil

Classification System (USCS), and described with regard to soil type, grain-size distribution, color, moisture content, density, and the presence of hydrocarbon odors. Hydrocarbon impact will be evaluated in the field through the use of a photoionization detector (PID). Samples will be analyzed for Total Petroleum Hydrocarbons (TPH) in accordance with EPA Method 8015, and Title 22 metals. All samples will be collected via EPA approved method 5035.

All reusable sampling equipment will be cleaned in an aqueous solution of a non-phosphate cleanser, rinsed with tap water, and rinsed a second time with de-ionized water to prevent cross contamination.

4.3 Survey

A California-licensed land surveyor will be used to survey the soil gas survey and soil sampling locations.

4.4 Waste Management

All investigation-derived waste (soil cuttings and decontamination water) will be placed in Department of Transportation (DOT)-approved 55-gallon steel drums that will be sealed, labeled, and left temporarily on site pending disposal. All waste will be handled, transported, and disposed of according to applicable State and Federal regulations.

5.0 REPORTING

5.1 Reporting

Soil gas sampling results and treatment cell soil sampling will be provided in two separate reports. Location and sample results will be summarized and evaluated.

The schedule to provide both sampling reports will currently be scheduled for August 31, 2016. This schedule is obviously dependent upon completion of the excavations and the use of the treatment cell areas.

5.2 Schedule

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6.0 REFERENCES

SGI. 2014. *Soil Management Plan: Treatment Cell Operation and Site Excavation* (SMP)

SGI. 2015. *Field Sampling and Analysis Plan and Sampling Strategy* (FASP)

7.0 REPORTING




This Work Plan has been prepared for the exclusive use of The DLA-Energy, their representatives, and authorized agents as it pertains to the remediation cell closures of the DFSP Norwalk Facility. This Work Plan was prepared in accordance with the level of care and skill normally exercised by members of the engineering profession currently practicing under similar conditions in the area. No other warranty, either expressed or implied, is made.

All work was performed under the supervision of a Professional Geologist or Professional Civil Engineer as defined in the Registered Geologist Act or Professional Engineers Act, respectively, of the California Code of Regulations. The information contained in this work plan represents our professional opinions and is based in part on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

FIGURE 1



Legend

-  Former Above Ground Storage Tanks
-  DFSP Norwalk Border
-  Proposed Soil and Soil Gas Sampling Location



DFSP Norwalk
15306 Norwalk Boulevard
Norwalk, California

Project Number:	Date:	Drawn By:	Approved By:
04-NDLA-007	2/27/2015	C. Baker	K. Wall

0 90 180 360
Feet

Temporary Soil Gas Probe Locations



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Figure
1