

Los Angeles Regional Water Quality Control Board

April 7, 2017

Ms. Carol Devier-Heeney, Environmental Protection Specialist
Defense Logistics Agency – Energy
3171 North Gaffey Street
San Pedro, CA 90731

WASTE DISCHARGE REQUIREMENTS FOR ONSITE TREATMENT OF CONTAMINATED SOIL – DEFENSE FUEL SUPPORT POINT SAN PEDRO, 3171 NORTH GAFFEY STREET, SAN PEDRO, CALIFORNIA (FILE NO. 90-60-147, ORDER NO. 90-148, CI-10314, GEOTRACKER GLOBAL ID. T10000010232)

Dear Ms. Devier-Heeney:

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board), has received the *Application to Conduct Land Treatment of Soils, Defense Fuel Support Point San Pedro*, transmitting an *Application/Report of Waste Discharge* (Form 200), dated February 27, 2017, including a *Soil Management Plan for Defense Fuel Support Point San Pedro – Pump House Area*, dated August 17, 2016. A revised Form 200, dated March 30, 2017, was received on March 31, 2017. The documents are collectively referred to as a Report of Waste Discharge (ROWD), which has been prepared by the Source Group, Inc. (SGI) and submitted on behalf of Defense Logistics Agency – Energy (Discharger) to apply for waste discharge requirements (WDRs) for the bio-remediation of petroleum hydrocarbons contaminated soils at the Defense Fuel Support Point San Pedro (Site) at 3171 North Gaffey Street, San Pedro, California.

The Site is owned by the US Air Force, controlled through the March Air Reserve Base, and was historically used to receive, store, and distribute military fuel. Active operations at the Site ceased in 2012 and the tanks and above ground infrastructure are planned to be decommissioned in the near future. As a result of past operations, soil and groundwater at the Site have been contaminated with petroleum hydrocarbons. Remediation of soil and groundwater at the Site, including removal of light non-aqueous phase liquid (LNAPL), has been on-going since 1996 and has been overseen by the Regional Board Site Cleanup Program (SCP). An estimated total of approximately 62,128 gallons of petroleum hydrocarbons has been recovered or destroyed. However, the current remediation system has not significantly reduced hydrocarbon levels in soil at the vadose-zone and shallow saturated-zone. To remediate the contamination in soil, the Discharger is proposing to carry out bioremediation at the Site using the Bulldog Green Remediation (BGR) technology.

The proposed bioremediation includes excavating and processing contaminated soil by adding a surfactant and bacteria solution and placing the soil into biotreatment piles (bio-piles) to provide adequate time for bacteria to destroy the hydrocarbons. Each bio-pile will be approximately 20 feet wide, 8 feet tall and 210 feet long. It is estimated that up to 18 bio-piles will be established in the treatment area. The bio-piles will be lined with high-density polyethylene (HDPE) plastic liners. A vapor extraction system consists of an electric motor and blower will extract soil vapors

April 7, 2017

from the subsurface. A pilot study conducted at the Site in 2015, followed by a laboratory study conducted in association with the California State University at Chico, indicates that the proposed bioremediation is an effective technology to remediate petroleum hydrocarbon contamination in soil at the Site. The proposed cleanup goals or the bioremediation were included in an Interim Remediation Action Plan (IRAP) that was conditionally approved by the Regional Board SCP staff in a letter dated February 21, 2017. A copy of the letter, as well as the proposed cleanup goals, are included herein as references.

Regional Board staff has completed review of the ROWD and determined that the proposed bioremediation project is appropriate to be regulated under Regional Board Order No. 90-148, *General Waste Discharge Requirements for Land Treatment of Petroleum Hydrocarbon Contaminated Soil in Los Angeles and Santa Clara River Basins*. Enclosed is the WDRs package, including:


1. General Waste Discharge Requirements (Order No. 90-148);
2. Monitoring and Reporting Program (No. CI-10314);
3. Regional Board SCP staff letter dated February 21, 2017; and
4. Cleanup goals.

Please note that coverage of the General WDRs is applicable only to the proposed bioremediation operations. The excavation, relocation, and storage of contaminated soil, as well as the reuse treated soil, are still regulated under SCP.

Please further note that the General WDRs only allow the land treatment of a maximum of 100,000 cubic yards of petroleum hydrocarbons contaminated soil and that the permitted treatment operations must be completed within 365 days from the date of this letter. A separate ROWD must be filed and approved in advance by the Regional Board Executive Officer if either the volume of contaminated soil being treated exceeds 100,000 cubic yards or the treatment period exceeds 365 days.

If you have any questions regarding the General WDRs, please contact Dr. Wen Yang, Chief of Land Disposal Unit at the Regional Board, at (213) 620-2253 or wen.yang@waterboards.ca.gov. Questions related to the remediation of the Site in general should be directed to Mr. Robert Ehe, Case Manager from SCP, at (213)-576-6740 or robert.ehe@waterboards.ca.gov.

Sincerely,


Samuel Unger, P.E.
Executive Officer

Enclosures

CC: Neil Irish, The Source Group (Neil.Irish@apexc.com)
Kent Reynolds, Bulldog Green Remediation, Inc. (kreynolds@bulldoggr.com)

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 90-148

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
LAND TREATMENT OF PETROLEUM HYDROCARBON CONTAMINATED SOIL
IN LOS ANGELES AND SANTA CLARA RIVER BASINS
(FILE NO. 90-60)

The California Regional Water Quality Control Board, Los Angeles Region, finds:

1. Soils contaminated with high concentrations of petroleum hydrocarbon, where identified and left unmitigated, are considered to be a discharge of waste that could affect the quality of the waters of the State, as defined in Section 13260 of the California Water Code.
2. Land treatment of these soils is proving to be an efficient and economical means of mitigating the effects of such hydrocarbon contamination. The threat to waters of the State is thereby eliminated or reduced to non-significant levels of contamination and the soil rendered suitable for reclamation and reuse. Such land treatment operations involve the discharge to land of petroleum hydrocarbon contaminated soil.
3. Section 2532(b)(5) of Chapter 15, Division 3, Title 23 of the California Code of Regulations, requires that Regional Boards shall specify in Waste Discharge Requirements, the elements of land treatment programs by dischargers who treat or dispose of wastes in land treatment waste management units.
4. Each month this Board receives a large number of Reports of Waste Discharge for the land treatment of hydrocarbon contaminated soils. Such requests far exceed the capacity of staff to review and bring to the Board for adoption, individual waste discharge requirements. These circumstances create the need for an expedited system for processing the numerous requests.

Revised October 22, 1990

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

5. The adoption of general waste discharge requirements would 1) simplify the application process for dischargers, 2) free up staff for higher priority work, and 3) reduce Board time involved by enabling the Executive Officer to notify the discharger, in appropriate cases, of the applicability of the general requirements adopted by the Regional Board. The vast majority of these discharges is characterized by low volume, short term discharges to land primarily for the purpose of allowing reuse of the soil during site cleanup and development.
6. These general waste discharge requirements for land treatment of up to 100,000 cubic yards of petroleum hydrocarbon contaminated soil for durations not exceeding 365 days under the direction of the Executive Officer, would benefit the public, staff and the Board through a streamlined process without loss of significant regulatory oversight.
7. The Board adopted revised Water Quality Control Plans for Santa Clara River Basin and Los Angeles River Basin on April 27, 1978 and November 27, 1978, respectively. These Water Quality Control Plans contain water quality objectives for ground water for all Hydrologic Subareas within the Region. The requirements contained in this Order, as they are met, will be in conformance with the goals of these Water Quality Control Plans.
8. All ground waters in both the Los Angeles and Santa Clara River Basins have beneficial uses which include municipal and domestic supply, agricultural supply, industrial process supply, and groundwater recharge.
9. The waste discharge requirements contained in this order would regulate such land treatment programs in accordance with Title 23, Division 3, Chapter 15, of the California Code of Regulations.
10. The issuance of Waste Discharge Requirements for the discharges subject to these general requirements is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code pursuant to one or more of the following provisions:
(1) The lead agency has prepared a negative declaration

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

2
based on findings pursuant to California Code of Regulations, Title 14, Chapter 3, Section 15070 which show that there will be no significant impact on water quality; or (3) The project would effect a minor alteration to the condition of land, and is exempt in accordance with Title 14, Chapter 3, Section 15304 of the California Code of Regulation.

11. This land treatment operation is a one time, short term process, and is not anticipated to require in excess of 365 days to complete at which time these requirements will expire.
12. These general waste discharge requirements are not intended to alter any existing working arrangements relating to cleanup cases with local governmental agencies.

The Board has notified the interested agencies and persons of its intent to adopt general waste discharge requirements for land treatment projects and has provided them with an opportunity to submit their written views and recommendations.

The Board in a public meeting heard and considered all comments pertaining to the tentative requirements.

IT IS HEREBY ORDERED THAT:

- A. This Order shall serve as General Waste Discharge Requirements for the temporary discharge of petroleum hydrocarbon contaminated soil to an on-site land treatment facility for land treatment processing of the soil. Upon receipt of a Report of Waste Discharge describing such a discharge, the Executive Officer shall determine if such discharge 1) involves 100,000 cubic yards or less of contaminated soil to be land treated, 2) involves a process that will bioremediate the contaminated soil to acceptable levels as determined by the Executive Officer, but not exceeding 1000 ppm, 3) will be completed within 365 days, and 4) is covered by adequate site assessment which characterizes the nature and extent of the soil contamination including sufficient water quality data, collected under the direction of an appropriate regulatory

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

agency, to determine the impact on ground water resulting from such soil contamination. In the event the Executive Officer so finds, he shall notify the applicant (hereinafter called the Discharger) in writing that the proposed land treatment operation is subject to this Order.

Notwithstanding the provisions of the above paragraph, appropriate cases may be brought to the Board for adoption of individual requirements when the Executive Officer deems it desirable or necessary to do so.

- B. The operation of any temporary land treatment facility shall be in conformance with Title 23, Division 3, Chapter 15, of the California Code of Regulations, "Discharge of Waste To Land", including but not limited to Sections 2510; 2532(b-5); 2549; 2550; 2580; 2584; 2590 and the following special provisions:
1. Wastes discharged on-site for biodegradation by a land treatment process shall be limited to hydrocarbon contaminated soil found on site. No other waste material shall be imported for land treatment on-site. The land treatment process, which includes water, nutrients and bacterial addition to soil along with soil aeration in the treatment zone, shall be conducted in such a way that no contaminants are added to surface water or ground waters.
 2. For any proposed development on-site during the land treatment, closure and post-closure period, as defined in Title 23, Division 3, Chapter 15 of the California Code of Regulations, the discharger shall submit to this Board, written notification of such development.
 3. During the land treatment operations, surface runoff from the drainage area tributary to this site shall be prevented from passing over or percolating through the treatment zone. Adequate facilities shall be provided to divert all surface runoff from storms away from the treatment area.
 4. The treatment zone shall be bermed in such a way that storm water falling directly on the treatment zone will be contained. Standing water within the contained treatment zone shall be pumped down immediately and

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

removed to treatment facilities on site or disposed of at a legal disposal site. For the purpose of this requirement, a legal point of disposal is defined as one for which waste discharge requirements have been established by a California Regional Water Quality Control Board, and which is in full compliance therewith.

5. No condition of pollution or nuisance shall be caused by the handling, treatment or reuse of the wastes or from any excavation operation conducted in association with this land treatment operation.
6. Odors from the handling, treatment or reuse of these wastes shall not be perceivable beyond the limits of the property owned or controlled by the discharger. The discharger shall demonstrate, to the satisfaction of the Executive Officer, a positive method for odor control, prior to beginning a full-scale land treatment operation.
7. All required state and local health department permits and/or variances and air quality permits and/or variances shall be obtained by the discharger prior to commencing the land treatment operation.
8. During full-scale operation of the land treatment operation, a sampling and analysis program shall be implemented, in accordance with a Monitoring and Reporting program prescribed by the Executive Officer, to verify that complete degradation and transformation of the petroleum hydrocarbon is occurring to levels approved by the Executive Officer. Reporting of this data shall comply with the Monitoring and Reporting Section of this Order.
9. Maximum land treatment zone thickness shall not exceed 18 inches or the maximum depth of penetration of the aeration equipment, whichever is less, except with prior written approval of the Executive Officer.

C. The following General Provisions Shall Apply:

1. A copy of these requirements shall be maintained at the discharge facility and be available at all times to operating personnel.

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

2. In the event of any change in name, ownership, or control of these land treatment facilities, the discharger shall notify this Board in writing and shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Board.
3. In the event the discharger is unable to comply with any of the conditions of this Order due to:
 - (a) Breakdown of waste treatment equipment,
 - (b) Accidents caused by human error or negligence,
 - (c) Other causes such as acts of nature,
 - (d) Facility operations,

The discharger must notify this Board by telephone within 24 hours of the incident and confirm it in writing within one week of the telephone notification.

4. In accordance with Section 13260 of the California Water Code, the discharger shall file a report with this Regional Board of any material change or proposed change in the character, location or volume of the discharge.
5. In accordance with Section 13267 of the California Water Code, the discharger shall furnish, under penalty of perjury, technical monitoring program reports; such reports shall be submitted in accordance with specifications prepared by the Executive Officer, which specifications are subject to periodic revisions as may be warranted.
6. Wastes discharged or reclaimed for reuse as soil backfill shall not contain any substance in concentrations toxic to human, animal, plant, or aquatic life.
7. Any off-site disposal of wastes shall be to a legal point of disposal and in accordance with the provisions of Division 7.5 of the Water Code. A legal point of disposal is defined in item A4 above.

8. The Regional Board and other authorized representative shall be allowed:

- (a) Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
- (b) Access to copy any records that are kept under the conditions of this Order;
- (c) To inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- (d) To photograph, sample, and monitor for the purpose of assuring compliance with this Order, or as otherwise authorized by the California Water Code.

9. Following completion of the land treatment program on site, the discharger shall, implement a land treatment facility closure plan, which complies with the requirements of Article 8, Chapter 15, Division 3, Title 23, of the California Code of Regulations. As a minimum the plan shall include but not be limited to the following:

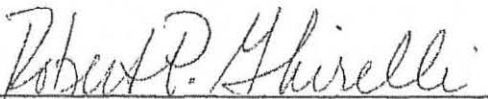
- (a) continue all operations necessary to maximize degradation of waste constituents within the treatment zone,
- (b) continue all ground water and unsaturated zone monitoring,
- (c) continue all operations in the treatment zone to prevent runoff from the site containing waste constituents, and
- (d) maintain the precipitation and drainage control systems.

General Waste Discharge Requirements
For Land Treatment of Petroleum Hydrocarbon
Contaminated Soil
Order No. 90-148

File No. 90-60

10. In accordance with Section 13263 of the Water Code, these waste discharge requirements are subject to periodic review and revision by this Regional Board.
 11. These requirements do not exempt the discharger from compliance with any other laws, regulations, or ordinances which may be applicable, they do not legalize these land treatment and disposal facilities and they leave unaffected any further restraints on those facilities which may be contained in other statutes or required by other regulatory agencies.
 12. An appropriate Health and Safety Plan for all assessment and mitigation activities at the site shall be filed with this Board prior to commencing any land treatment activities.
- E. The attached Monitoring and Reporting Program is made a requirement of the order.
- F. The Waste Discharge Requirements regulating a specific short term land treatment expire 365 days after the Executive Officer has determined the applicability of this Order to the specific project.

I, Robert P. Ghirelli, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on October 22, 1990.



ROBERT P. GHIRELLI, D.Env.
Executive Officer

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION
MONITORING AND REPORTING PROGRAM NO. CI-10314
FOR
LAND TREATMENT OF PETROLEUM HYDROCARBON CONTAMINATED SOIL
DEFENSE FUEL SUPPORT POINT SAN PEDRO
3171 NORTH GAFFEY STREET, SAN PEDRO, CALIFORNIA
(FILE NO. 90-60-147)**

Defense Logistics Agency – Energy (Discharger) shall implement this Monitoring and Reporting Program (MRP), No. CI-10314, at the Defense Fuel Support Point San Pedro (Site) pursuant to Order No. 90-148 (Order) adopted by the Regional Water Quality Control Board, Los Angeles Region (Regional Board), on October 22, 1990.

I. REPORTING REQUIREMENTS

- A. The Discharger shall submit monitoring reports to the Regional Board in a quarterly basis. The first monitoring report under this MRP is due on July 15, 2017. Thereafter, monitoring reports shall be submitted by the date in the following schedule:

<u>Reporting Period</u>	<u>Report Due</u>
January - March	April 15
April - June	July 15
July - September	October 15
October - December	January 15

- B. Within 30 days of completing all post treatment sampling, a "Final Project Completion Report" shall be submitted to the Regional Board verifying that all bioremediation operations at the Site are complete. The report shall include all data collected to date, the quantity and the final disposition of all treated soil, and verify that all cleanup goals have been met. A statement shall be included stating that the land treatment was completed in accordance with the Order. All other signed statements required by under the Order shall also be included.

II. GROUNDWATER MONITORING

The Discharger is currently implementing an Interim Remediation Action Plan (IRAP) at the Site that includes soil vapor extraction, groundwater extraction, LNAPL removal, and groundwater monitoring under the Regional Board Site Cleanup Program (SCP). Since the proposed bioremediation cells will be lined with high density polyethylene (HDPE) liners and covered with heavy duty plastic sheets, they are not expected to release additional pollutants to groundwater. As such, groundwater monitoring dedicated to the bioremediation piles is not required. Nevertheless, the Discharger may be required to conduct additional groundwater monitoring for the bioremediation project if the Regional Board Executive Officer (Executive Officer) determines that such requirements are warranted.

III. LAND TREATMENT MONITORING

- A. Progress monitoring – Progress samples shall be collected at least monthly following the initiation of bioremediation operations to evaluate the effectiveness of soil treatment. Soil samples shall be collected at a rate of at least one sample per 500 cubic yards (CY), or

April 7, 2017

MONITORING AND REPORTING PROGRAM NO. CI-10314
Defense Fuel Support Point San Pedro

at an alternative rate determined under SCP, of soil being treated. Sampling locations shall be determined by subdividing each batch into approximately equal grid cells. One sample shall be collected at a randomly selected location from each grid cell during each successive sampling event. Progress monitoring samples shall be analyzed for the following constituents:

Parameter	Units	Frequency
Bacteria Plate Count	Colonies/gram	Monthly
Soil Moisture Content	%	Monthly
Total Petroleum Hydrocarbons (TPH) (EPA Method 8015)	micro gram/kilogram	Monthly

- B. Acceptance sampling – At the end of each treatment cycle, prior to removal from the treatment stockpile, acceptance samples shall be taken at a rate of 35 samples per each treatment stockpile of approximately 750 CY, or at an alternative rate determined under SCP. Sampling locations shall be evenly distributed along the length, width, and depth of each treatment stock pile. All acceptance samples shall be analyzed for the following constituents:

Parameter	Units
Total Petroleum Hydrocarbons (EPA Method 8015)	milligram/kilogram
Volatile Organic Compounds (VOCs, EPA Method 8260B)	microgram/kilogram

The Discharger shall verify that concentrations of all contaminants are below their respective cleanup goals prior removal and reuse treated soil. Treated soil that exceeds cleanup goals shall either be retreated until the cleanup goals are achieved or be properly disposed of offsite. No treated soil shall be reused or backfilled unless all cleanup goals are met.

- C. Post treatment sampling – Following the completion of bioremediation operations, the Discharger shall inspect all liners for any damages that may have resulted in the release of pollutants from the treatment rows to the underline soil. A minimum of three surface samples shall be taken at each treatment row and analyzed for TPH (EPA Method 8015) and VOCs (EPA Method 8260B). Any soil that exceeds cleanup goals shall be excavated and properly disposed of offsite or treated onsite if a treatment cell is still active.
- D. Inspections - Throughout the duration of bioremediation operations, the Discharger shall conduct visual inspections at least weekly at the treatment cells to ensure that all liners, covers, and vapor and moisture control systems are properly maintained. Any damages shall be repaired immediately. Records of such inspections shall be included in the quarterly reports submitted to the Regional Board.

IV. GENERAL PROVISIONS FOR SAMPLING AND ANALYSIS

- A. All sampling, sample preservation, and analysis, shall be performed in accordance with the latest editions of "Guidelines Establishing Test Procedure for Analysis of Pollutants," promulgated by the United States Environmental Protection Agency (U.S. EPA) and U.S. EPA SW-846 Methods (dated December 1996).

MONITORING AND REPORTING PROGRAM NO. CI-10314
Defense Fuel Support Point San Pedro

- B. All chemical, bacteriological, and bioassay analyses, shall be conducted at a laboratory certified for such analyses by the State Water Resources Control Board Division of Drinking Water Program Environmental Laboratory Accreditation Program (ELAP), or approved by the Executive Officer. No changes shall be made in sampling points without prior approval of the Executive Officer.
- C. Written and verbal notice must be made to the Regional Board a minimum of seven days in advance of the sampling event so that staff may participate, if they choose.
- D. The Discharger shall maintain all sampling and analytical results, including strip charts, date, exact location, and time of sampling, date analysis were performed, name of analyst, analytical techniques used, and results of all analysis. Such results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

V. GENERAL PROVISIONS FOR REPORTING

- A. When applicable, all reports shall contain the following minimum information:
 - 1. Quantity of waste material treated during the reporting period;
 - 2. Analytical results from all soil sampling and any groundwater monitoring, if required;
 - 3. Quantity of water and nutrients added to the land treatment units during the report period;
 - 4. Records of bioremediation operations and facility inspections conducted during the report period;
 - 4. A statement certifying that storm water runoff was prevented from entering the land treatment area, other than rainfall directly on the land treatment units, and that no waste material was carried away from the land treatment area by stormwater runoff; and
 - 5. Color photographs of the bioremediation operations shall be taken at least monthly and be included in the quarterly and final reports.
- B. All technical reports prepared for submittal to the Regional Board shall be signed by a California registered Professional Engineer or Professional Geologist.
- C. For every item where requirements in the Order are not met, the Discharger shall submit a statement of the actions undertaken or proposed, together with a timetable, to bring the Discharger back into full compliance with the requirements at the earliest time.
- D. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the data, the constituents, and the concentrations, are readily discernible. The data shall be summarized to determine compliance with waste discharge requirements, and where applicable, shall include receiving groundwater analytical data.
- E. Reports submitted to the Regional Board shall be signed by:
 - 1. In the case of a corporation, the principal executive officer of at least the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which discharge originates;
 - 2. In the case of a partnership, a general partner;

MONITORING AND REPORTING PROGRAM NO. CI-10314
Defense Fuel Support Point San Pedro


3. In the case of a sole proprietorship, the proprietor;
4. In the case of a municipal, state or public facility, either a principal executive officer, ranking elected officer, or other duly authorized employee.

F. Each report shall contain the following completed declaration:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G. Unless it is otherwise required by the Executive Officer, all reports required under this MRP shall be submitted to the State Water Resources Control Board (State Board) Geotracker database system, under Global ID **T10000010232**, in the form of searchable Portable Document Format (PDF) files. In addition, any groundwater monitoring data shall also be submitted to Geotracker in Electronic Deliverable Format (EDF). A hard copy of the report, including all original laboratory reports and field records that are used in preparation of the reports, shall be retained by the Discharger and be available for review by Regional Board staff.

H. These records and reports are public documents and shall be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by: 
Samuel Unger, P.E.
Executive Officer

Date: April 7, 2017



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

February 21, 2017

Ms. Carol L. Devier-Heeney
Defense Logistics Agency Installation Support for Energy
8725 John J. Kingman Road
Fort Belvoir, Virginia 22060

**SUBJECT: CONDITIONAL APPROVAL OF INTERIM REMEDIAL ACTION PLAN FOR
PUMP HOUSE AREA**

**SITE: DEFENSE FUEL SUPPORT POINT SAN PEDRO, 3171 N. GAFFEY STREET,
SAN PEDRO, CA (SITE CLEANUP PROGRAM NO. 285, DOD CASE NO. 16637)**

Dear Ms. Devier-Heeney:

California Regional Water Quality Control Board, Los Angeles Region (Regional Board) staff received the *Interim Remedial Action Plan for Pump House Area, Defense Fuel Support Point San Pedro* (IRAP) dated December 1, 2016, prepared by The Source Group, Inc. on behalf of the Defense Logistics Agency Installation Support for Energy. The IRAP was prepared to address petroleum-impacted unsaturated and saturated soils and groundwater within the approximately 15-acre Pump House Area (PHA) located in the southeast corner of the Defense Fuel Support Point (DFSP) in San Pedro.

In the IRAP, hydrocarbon plumes from past releases within the PHA have been grouped into three distinct plumes; the Northern PHA Plume, the North-Central PHA Plume, and the Central PHA Plume. Based on recent assessment findings, this remedial effort is focused in these two areas. The proposed interim remedial action is designed to address residual hydrocarbon mass present in the Central PHA Plume and at a targeted location within the North-Central Plume. The North-Central PHA Plume is an area defined by the commingling of petroleum releases believed to have originated at the formerly used pump houses (Bldgs 205 and 204) located on the western side of the PHA access road, within the north-central part of the PHA. The Central PHA Plume is composed of historical fuel releases from formerly used valve pits and pump houses (including, Buildings 202 and 203 and valve pits 112 and 113) into the underlying soil and groundwater. Liquid phase hydrocarbons found in the Central PHA Plume wells formerly ranged up to 15 feet thick. Nearly 20 years of product recovery and vapor extraction, with the majority of the Central PHA wells free of product and the remaining wells containing less than 0.5 foot of product. All of the facilities at the PHA are currently nonoperational. Pump Houses 201 through 206 and various valve pits were taken off-line from the transportation of fuels in 1995.

Proposed site cleanup goals developed in the IRAP were using the procedures prescribed in the Regional Board's Interim Site Assessment and Cleanup Guidebook (1996), and are calculated site-specific goals to be protective of the leaching to groundwater pathway. Groundwater cleanup goals have not been established for the Site, however, in the IRAP, it is assumed water quality cleanup goals are California Drinking Water Maximum Contaminant Levels (MCLs) or California drinking water notification levels. Post-remediation monitoring and sampling, coupled with risk screening, will be used to determine a cleanup goals based on a future industrial/commercial site use. The IRAP states results of confirmation soil sampling and analyses will be used to risk screening models to demonstrate that the proposed interim

IRMA MUÑOZ, CHAIR | SAMUEL UNGERLE, EXECUTIVE OFFICER

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remedial actions have reduced incremental predicted risks to allow for future industrial/commercial use. Also, post-remediation groundwater monitoring, coupled with risk screening, will be used to determine cleanup goals based on a future industrial/commercial site use. Regional Board staff understands goals are calculated for an interim remedial action; however, human health risk for possible residential use needs to be considered in calculating site cleanup goals for the purpose of final site remediation. For final groundwater cleanup goals calculations, we also request using San Francisco Bay Regional Water Quality Control Board, Environmental Screening Levels (ESLs) to provide more conservative screening levels.

Considering site-specific conditions, on-site biologic treatment of soil, was selected in the IRAP as the interim remedial alternative. Approximately 30,000 cubic yards of soil within two on-site areas (the two areas with the highest concentrations of TPH in vadose and saturated soil) is proposed to be excavated (up to 35 feet below ground surface), groundwater accumulating in the excavations will be extracted and treated, and excavated soil will be treated on-site using biological processes. Clean overburden soil and treated soil will be used to backfill the resulting excavations. The primary advantage of excavation and on-site treatment is permanence and the relatively short-time-frame needed for implementation. On-site biologic treatment of petroleum soils requires that a project-specific waste discharge requirement (WDR) permit be obtained from the Regional Board.

Regional Board staff has reviewed the IRAP, and based on our review, we approve of implementation of the IRAP as proposed at the PHA, however, we have a condition that the final site cleanup goals consider human health risk for possible residential use and the above-stated ESLs. A technical report of results of implementation of the IRAP is due to the Regional Board by **December 20, 2017**.

If you have any questions, please contact me at (213) 576-6740, or robert.ehe@waterboards.ca.gov.

Sincerely,



Robert Ehe, P.E.
Site Cleanup Unit IV

Electronic Copies:
Mr. Neil Irish, The Source Group

TABLE 1

SOIL CLEANUP GOALS
Defense Fuel Support Point
San Pedro
3171 North Gaffey Street,
San Pedro, California

	Cleanup Goals (Note 1)	
	Depth Below Ground Surface (feet)	
	Distance to Groundwater (feet)	
	0.5 - 5	>5
	>21	<21
TPH	Soil Cleanup TPH Goal (mg/kg)	
Carbon Range (C4-12)	500	100
Carbon Range (C13-C22)	1,000	100
Carbon Range (C23-C32)	10,000	1,000
Carbon Range (C33-C44)	50,000	10,000
PETROLEUM VOCs	Soil Cleanup VOC Goal (mg/kg)	
Benzene	0.013	0.011
Ethylbenzene	1.44	1.07
Toluene	0.444	0.356
Xylenes	3.77	2.76
1,2,4-Trimethylbenzene	1.8	0.12
1,3,5-Trimethylbenzene	1.77	0.118
Isopropylbenzene	4.78	0.303
Naphthalene	0.231	0.012
n-Butylbenzene	3.4	0.179
n-Propylbenzene	1.87	0.114
p-Isopropyltoluene	2.42	0.154
sec-Butylbenzene	2.22	0.129
Styrene	0.399	0.03
tert-Butylbenzene	1.78	0.11
PETROLEUM RELATED VOCs	Soil Cleanup VOC Goal (mg/kg)	
1,2-Dibromoethane (EDB; Fuel Additive; Common Detection Limit Proposed - Note 2)	0.005	0.005
1,2-Dichloroethane (Fuel Additive; Common Detection Limit Proposed - Note 2)	0.005	0.005
Diisopropyl Ether (DIPE)	0.424	0.212
Methyl-tertiary-Butyl Ether (MTBE; Common Detection Limit Proposed - Note 2)	0.005	0.005
tertiary-Butyl Alcohol (TBA; Common Detection Limit Proposed - Note 2)	0.02	0.02
tertiary-Amyl Methyl Ether (TAME; Common Detection Limit Proposed - Note 2)	0.005	0.005
Ethyl-tertiary-Butyl Ether (ETBE; Common Detection Limit Proposed - Note 2)	0.005	0.005
NON-PETROLEUM RELATED VOCs	Soil Cleanup VOC Goal (mg/kg)	
Acetone	0.994	1.28
2-Butanone (MEK), 2-Hexanone (MBK), 4-Methyl-2-pentanone (MIBK), and Methylene Chloride	0.05	0.05
1,2-Dibromo-3-chloropropane and Hexachlorobutadiene	0.01	0.01
All Other Volatil Organic Compounds (VOCs)	0.005	0.005

mg/kg = milligram per kilogram

Note 1: The Guidebook specifies that the soil cleanup goals are calculated by the same general formula as the US EPA Soil Screening Levels, which is as follows: soil cleanup goal = total attenuation factor x water quality standards. The proposed water quality standards used to calculate the soil cleanup goals were most conservative of sources from 1) California drinking water Maximum Contaminant Levels, 2) California drinking water Notification Levels, and 3) US EPA Tapwater Regional Screening Levels. Site-specific soil parameters including thickness of the clay, sand, and silt layers were used when calculating attenuation factors - values calculated for the DFSP Norwalk cleanup site were adopted when more conservative (lower).

Note 2: For the listed compounds, common laboratory detection limits are proposed. The soil cleanup goals calculated for these compounds, based on attenuation factors and water quality standards, are below typical detection limits. Therefore, the proposed cleanup goals will be "non detect" at usual reporting limits.