CH2M HILL, INC.
1000 Wilshire Boulevard
21st Floor
Los Angeles, CA 90017
Tel 213.538.1388
Fax 213.538.1399

August 3, 2012

438676.A1.01

Mr. Paul Cho
California Regional Water Quality Control Board,
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: Revised Soil Boring Investigation Work Plan, South-Central and Southeastern Areas, SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California

Dear Mr. Cho:

This revised work plan was prepared by CH2M HILL on behalf of SFPP, L.P. (SFPP), an operating partner of Kinder Morgan Energy Partners, L.P. (KMEP), to assess the current extent of impacted soil in the vadose zone in the south-central and southeastern areas of the SFPP Norwalk Pump Station, located at 15306 Norwalk Boulevard, Norwalk, California (Figure 1). The scope of work also includes drilling and construction of one groundwater monitoring well in Holifield Park. The monitoring well will serve as an additional downgradient monitoring point for dissolved-phase hydrocarbons in the southeastern area plume. The scope of work for this investigation is based on discussions during the meeting with the City of Norwalk and Regional Water Quality Control Board, Los Angeles Region (RWQCB) on March 28, 2012, and previous discussions with KMEP.

The work plan was revised to incorporate the RWQCB's comments on the initial work plan, dated June 1, 2012. In a letter dated July 17, 2012, the RWQCB requested that field screening be performed for soil core samples with a photoionization detector (PID) before selecting soil samples for laboratory analysis. This revised work plan incorporates the RWQCB's request.

The proposed work includes advancing direct-push borings, lithologic logging, and collecting and analyzing discrete-depth soil samples from ground surface to the top of the uppermost groundwater zone. Borings will be located in known release areas and areas with elevated concentrations of dissolved-phase hydrocarbons. One soil boring in Holifield Park will be completed as a monitoring well using hollow-stem auger drilling methods.

The following sections summarize relevant background information, state the objectives of the planned work, describe the proposed scope of work and methods, and present a general schedule for implementation of this work plan. As noted below, a report will be prepared

and submitted to the RWQCB describing the results of this work. A separate deliverable with proposed soil cleanup goals will be provided to the RWQCB after confirming there are no additional data needs identified from the results of the work described in this work plan.

Background Information

The Defense Fuel Support Point (DFSP) facility is located at 15306 Norwalk Boulevard in Norwalk, California. SFPP has equipment along the southern and eastern boundaries of the DFSP facility. Previously, SFPP operated a pump station at the DFSP facility. The pump station was decommissioned in 2001, but three pipelines heading eastward along the southern boundary of the DFSP facility, one of which bends at the southeastern corner of the facility and continues northward within the eastern easement, remain in service and continue to convey refined petroleum fuels including gasoline, diesel, and jet fuel. The pipelines are fitted with block valves, two of which are located along a 24-inch-diameter pipeline and within areas currently undergoing remediation. One block valve is located in the south-central portion of the site and is referred to as the "intermediate 24-inch block valve." The other block valve is located offsite near the southeastern area of the site and is referred to as the "southeastern 24-inch block valve" or "offsite 24-inch block valve."

Hydrogeologic Conditions

The DFSP facility is underlain by the following hydrogeologic units (shallow to deep):

- **Semiperched groundwater zone between depths of approximately 25 and 50 feet below ground surface (bgs).** Groundwater flow within this uppermost zone is generally north to northwestward under a horizontal gradient of approximately 0.001 foot per foot (ft/ft).
- **Bellflower aquitard of the Lakewood Formation between depths of approximately 50 and 80 feet bgs beneath the site**. The Bellflower aquitard consists of predominantly clay, silty clay, and sandy clay with some interbedded sand with silt.
- **Exposition aquifer between depths of approximately 80 and 220 feet bgs.** The potentiometric surface in the Exposition aquifer is approximately 20 feet lower than that in the semiperched uppermost groundwater zone. This relatively consistent difference in hydraulic heads between the semiperched upper groundwater zone and the Exposition aquifer indicates that the Bellflower aquitard inhibits the vertical movement of groundwater in the site area. The horizontal hydraulic gradient in the Exposition aquifer beneath the site area has had a magnitude of approximately 0.001 ft/ft and a generally southeastward direction.

Previous Assessments

Soil investigations have been conducted onsite and offsite by several environmental consultants since 1986. Harding Lawson Associates (HLA) conducted an initial investigation to study reports of buried waste oil in the southwest portion of the DFSP property in 1986. Previous investigations are summarized in the report titled, *Remedial Action Plan for the*

South Central Portion of the Norwalk Defense Fuel Support Point, Norwalk, California[1] and in subsequent reports prepared by Geomatrix (now known as AMEC Geomatrix) and CH2M HILL. Past investigations evaluated the extent of the liquid-phase, sorbed-phase, and dissolved-phase fuel hydrocarbons within the facility and offsite properties south, east, and west. Principle chemicals of concern include total petroleum hydrocarbons (TPH) (including TPH quantified as gasoline [TPH-g], diesel fuel [TPH-d], jet propellant 4 [JP-4], jet propellant 5 [JP-5], and jet propellant 8 [JP-8]); benzene, toluene, ethylbenzene, and total xylenes (collectively known as BTEX); 1,2-dichloroethane (1,2-DCA); methyl tertiary butyl ether (MTBE); and tertiary butyl alcohol (TBA).

Geomatrix began their investigations at SFPP's former leased portion of the south-central area in 1990, when they drilled and sampled seven soil borings, four of which were converted to groundwater monitoring wells (MW-SF-1 to MW-SF-4). Geomatrix also reviewed aerial photographs of the site and surrounding areas to determine the development history of the site. Results of the review indicated that there may have been settling ponds and tank overfills adjacent to the site, and that aboveground tanks existed at the DFSP facility prior to 1927. Additional information can be found in the report titled, *Soil and Groundwater Investigation Report of the Santa Fe Pacific Pipelines Norwalk Pump Station, Norwalk, California*[2].

In 1991, Geomatrix performed potholing and soil sampling at locations of certain underground pipeline features such as valves and flanges. Results of this investigation are presented in the report titled, *Additional On-site Subsurface Investigation DFSP Norwalk Facility, Norwalk, California*[3]. A total of nine pothole locations in selected areas of the pump station were chosen for this investigation. There were no visible leaks or petroleum-saturated soils observed near the portions of the pipelines that were exposed. Soil analytical results indicated that fuel-hydrocarbon-impacted soils were present at five of the potholing locations and at one hand auger location. Additional investigations conducted in the early 1990s include soil gas and ambient air surveys, light nonaqueous phase liquid (LNAPL) identification, and the installation of groundwater and vapor monitoring and recovery wells.

Beginning in 1991, various LNAPL removal operations were conducted at the site by Geomatrix and Groundwater Technology Government Services, Inc. (GSI). LNAPL removal from the plume under the south-central area was conducted by hand-bailing operations and skimming of LNAPL from onsite wells using pumps. An onsite hydrocarbon removal system was installed at the site by GSI and began operation in May 1992. A more robust vapor and LNAPL recovery system was designed and installed by Geomatrix in September 1995 and has been in operation since that time.

---

[1] Geomatrix. 1994. *Remedial Action Plan for the South Central Portion of the Norwalk Defense Fuel Support Point, Norwalk, California.* August 12.

[2] Geomatrix. 1990. *Soil and Groundwater Investigation Report of the Santa Fe Pacific Pipelines Norwalk Pump Station, Norwalk, California.* August 17.

[3] Geomatrix. 1991. *Additional On-site Subsurface Investigation DFSP Norwalk Facility, Norwalk, California*. December 19.

Known Release Areas

As mentioned above, environmental investigations have been conducted at the facility since 1986, but there is little documentation regarding specific releases at SFPP's former leased portion of the south-central area. Subsurface or surface releases are known to have occurred at the former SFPP lease area at the intermediate 24-inch block valve (near MW-SF-4) and east of the SFPP power building (generator fuel spill). A release at the southeastern 24-inch block valve in 1994 is also well documented. Provided below is a discussion of these releases and the investigations that followed.

Intermediate 24-inch Block Valve

In January and February 2003, a pipeline leak test was conducted along the active pipelines in the southern portion of the site. Results of the investigation indicated that there was a leak next to a block valve on the 24-inch pipeline that runs along the southern property boundary. This block valve, referred to as the intermediate 24-inch block valve, is located approximately 20 to 30 feet northeast of onsite well MW-SF-4. After the leak was detected, SFPP excavated soil around the block valve and repaired the valve to stop the leak. The excavation was approximately 9 feet by 9 feet to a depth of approximately 15 feet. Soil samples collected at the bottom of the excavation at 15 feet bgs on either side of the pipeline contained hydrocarbons in the C8-C40 range at concentrations up to 12,000 milligrams per kilogram (mg/kg). The excavation was discontinued due to the limitations of the excavation equipment and the close proximity of other pipelines and electrical conduits in the immediate area.

Following the pipeline testing and excavation activities in January and February 2003, Geomatrix initiated additional site assessment activities in the intermediate block valve area. In April 2003, additional assessment activities included lithologic logging, soil sampling, and grab groundwater sampling using direct-push methods; also, a soil boring was drilled, sampled, and completed as a piezometer. The methods and results are presented in the report titled, *Additional Site Assessment Intermediate 24-inch Block Valve Area, Defense Fuel Support Point, Norwalk, California*[4].

Analytical results for soil samples collected during the additional assessment indicate that elevated BTEX, TPH-g, TPH-d, and MTBE concentrations in soil beneath the immediate vicinity of the intermediate block valve extend downward to groundwater. Borings located northwest and northeast of the intermediate block valve showed that the lateral extent of soil impacted by the release from the intermediate block valve was limited to a distance of approximately 30 feet or less from the block valve in these directions. Soil vapor extraction (SVE) well MW-SF-10 was subsequently constructed in the immediate release area as part of the recommendations to this investigation.

SVE has been performed in the south-central area since September 1995 and in the immediate vicinity of the intermediate 24-inch block valve since approximately 2003, after the construction of well MW-SF-10. The SVE system is currently connected to 30 wells in the south-central area and 3 wells in the southeastern area. Approximately 458,000 gallons of

[4] Geomatrix, 2003. *Additional Site Assessment Intermediate 24-inch Block Valve Area, Defense Fuel Support Point, Norwalk, California.* May 30.

equivalent fuel have been removed by SVE and destroyed using thermal or catalytic oxidation since 1995, when the remediation system was started. Additional hydrocarbon mass has been destroyed by natural biodegradation. The proposed soil sampling in the intermediate 24-inch block valve area will document current conditions.

Generator Fuel (Diesel) Spill

On June 22, 2010, SFPP excavated approximately 40 cubic yards of soil to a maximum depth of approximately 7 feet bgs in response to discovery of a release of diesel fuel from a generator located east of the SFPP power building. The generator was used to supply temporary power to the remediation systems. More extensive excavation was not feasible due to the presence of electrical conduits and the proximity of the power building entry platform. Soil samples were collected at depths up to 14 feet bgs and analyzed to document the environmental condition of soil remaining in place. Concentrations of TPH-d and BTEX in soil remaining in place generally decreased with increasing depth and distance from the observed source area east of the power building. The excavation was backfilled with clean imported soil on October 22, 2010. No additional soil assessments have been conducted in the intermediate 24-inch block valve area since this time.

Southeastern 24-inch Block Valve

In April 1994, SFPP detected a leaking seal at the offsite 24-inch block valve in the southeastern area. The valve was repaired and approximately 30 cubic yards of hydrocarbon-impacted soil was excavated from the vicinity of the valve. Geomatrix was retained to assess subsurface conditions associated with the release that occurred as a result of the leaking valve seal, and conducted a subsurface assessment consisting of soil sampling at nine boring locations, five of which were converted into groundwater monitoring wells. The results of the 1994 subsurface assessment were presented in the report titled, *Site Assessment of Fuel Hydrocarbons in Soil and Groundwater Associated with a Leak in a 24-Inch Block Valve Area*[5]. The soil sampling analytical results from the 1994 assessment showed that the lateral extent of soil impacts around the offsite 24-inch block valve was adequately delineated by borings GMW-SF-7 to the northwest, GMW-SF-8 to the southwest, GMW-O-17 to the south-southeast, GMW-O-19 to the east-southeast, and GMW-O-18 to the northeast.

The results from the 1994 assessment showed that the presence of elevated concentrations of fuel constituents in soil was limited to the immediate vicinity of the release area. Elevated concentrations of fuel constituents were detected at greater depths (between approximately 24.5 and 29.5 feet bgs at several boring locations); however, based on the depth to groundwater beneath the site (historically between approximately 24 and 30 feet bgs), the presence of fuel constituents at these depths is interpreted to reflect groundwater or capillary zone conditions rather than vadose zone soil.

In 2006 and 2007, Parsons Corporation (Parsons) collected and analyzed soil and soil gas samples offsite as part of an investigation on behalf of Defense Logistics Agency (DLA)

---

[5] Geomatrix. 1994. *Site Assessment of Fuel Hydrocarbons in Soil and Groundwater Associated with a Leak in a 24-Inch Block Valve Area.* September 30.

Energy (formerly the Defense Energy Support Center [DESC]) and KMEP. The data are presented in the report titled, *Investigation Report for Holifield Park and Dolland Elementary School*[6]. The southern extent of Parsons' investigation included five borings (B-122, B-24, B-24NORTH, B-24EAST, and B-24SOUTH) in the vicinity of the offsite 24-inch block valve. Parsons collected soil samples at all five locations and soil gas samples at four of the five locations. During its 2006/2007 investigation, Parsons collected soil samples to a depth of approximately 25 feet at all five locations. Volatile organic compounds (VOCs) and TPH were not detected, or were detected at concentrations below the risk-based and soil-to-groundwater screening levels in soil samples from all locations with one exception. In B-24SOUTH, benzene, toluene, and TPH-g were detected at concentrations above screening levels in the sample from 25 feet bgs. As indicated above, it is likely that the concentrations of fuel constituents in soil from this depth are a result of historical impacts to groundwater. Parsons indicated in its 2007 report that further investigation to delineate the extent of soil impacts in this area is not necessary because concentrations of these constituents in soil were not detected in nearby soil sampling locations (e.g., B-24 and B-24EAST) at the corresponding depth (25 feet bgs), indicating that the vertical and horizontal extent of impacts in soil appear to have been characterized in these directions. Parsons' 2007 report also indicates that the southern extent of potential soil impacts at B-24SOUTH appears to have been characterized based on VOC concentrations in soil samples collected approximately 75 feet south of B-24SOUTH as previously reported by KMEP (Geomatrix, 2006)[7].

At the request of the RWQCB, SFPP has conducted follow-up soil and groundwater assessments in the southeastern 24-inch block valve area since 2008. Of these, two investigations included soil sampling and analysis for constituents of concern. These included a step-out investigation in the vicinity of well GMW-O-18, and a vertical assessment of LNAPL using ultraviolet optical screening tool (UVOST) technology in the south-central, southern offsite, and southeastern areas. The results of these investigations are presented in the CH2M HILL reports titled, *Results of Step-Out Investigation at the Southeastern Area of the SFPP Norwalk Station, Norwalk, California*[8] and *Results of LNAPL Characterization in Uppermost Groundwater Zone and Top of Bellflower Aquitard, SFPP Norwalk Pump Station, Norwalk, California*[9], respectively. Soil analytical results from both investigations indicate that the hydrocarbon impacts in the study areas are predominantly near the water table (i.e., capillary fringe). Minimal impacts to the shallower depths of the vadose zone were reported.

SVE has been performed in the southeastern 24-inch block valve area since the mid-1990s and there are currently three wells connected in this area (GMW-36, GMW-O-15, GMW-O-18).

---

6 Parsons, 2008. *Final Investigation Report for Holifield Park and Dolland Elementary School, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California.* January 10.

7 Geomatrix. 2006. *Vapor Intrusion Sampling and Human Health Risk Assessment, DFSP Norwalk Facility, Norwalk, California.* December 15.

8 CH2M HILL. 2010. *Results of Step-Out Investigation at the Southeastern Area of the SFPP Norwalk Station, Norwalk, California.* August 10.

9 CH2M HILL. 2012. *Results of LNAPL Characterization in Uppermost Groundwater Zone and Top of Bellflower Aquitard, SFPP Norwalk Pump Station, Norwalk, California.* February 8.

SVE has removed a significant mass of hydrocarbons from the subsurface and additional hydrocarbon mass has been destroyed by natural biodegradation. The proposed soil sampling in the southeastern 24-inch block valve area will document current conditions.

Objectives and Approach

This investigation will include the drilling of up to seven soil borings in the south-central area and three soil borings in the southeastern area to facilitate the collection of discrete-depth soil samples from ground surface to the top of the water table (approximately 30 feet bgs). One boring in the southeastern area will be advanced to approximately 50 feet bgs and converted to a permanent monitoring well.

The following objectives will be achieved under this investigation:

- Assess the current vertical extent of impacted soil in the vadose zone at the known release areas and areas with elevated concentrations of dissolved-phase hydrocarbons.
- Provide a permanent groundwater monitoring point approximately 100 feet northeast of monitoring well GMW-O-18 to better define the downgradient extent of dissolved-phase hydrocarbons in the southeastern 24-inch block valve area.
- Provide additional soil data representative of current conditions for evaluation of risk-based cleanup goals for TPH, BTEX, and other VOCs.

Figure 2 shows the approximate locations of proposed soil borings (SB-1 to SB-9) and monitoring well GMW-O-24. The objectives of each the borings are as follows:

- SB-1 through SB-7 are in the south-central area and will define the vertical and lateral extent of impacts to soils in this area. In addition, SB-4 is positioned near the diesel fuel release area, and SB-7 is near the intermediate 24-inch block valve release area to define the vertical impacts to soils in those specific areas.
- SB-8 and SB-9 are near the southeastern 24-inch block valve release area and will define the vertical extent of impact to soils in this area. The horizontal extent of impacts to soils has been defined from the previous investigations described above. As described above, the horizontal extent of impacts to vadose zone soil is localized to the immediate vicinity (within 25 feet) of the release area.
- GMW-O-24 is in Holifield Park and will confirm the localized horizontal extent of impacts to vadose zone soils.

Scope of Work

The proposed scope of work to address the objectives of this investigation consists of drilling, lithologic logging, and discrete-depth soil sampling at nine locations in the south-central and southeastern areas using direct-push methods. One additional boring will be advanced in Holifield Park and completed as a permanent monitoring well using

hollow-stem auger methods. Figure 2 shows the approximate locations of the proposed borings (SB-1 through SB-9) and permanent monitoring well (GMW-O-24).

The scope of work for this investigation will include pre-field activities, direct-push soil sampling and laboratory analysis, hollow-stem auger drilling and monitoring well construction, and preparation of a final report.

Pre-Field Activities

CH2M HILL will perform the following permitting and field preparation activities, prior to commencement of the soil vapor probe installation and sampling:

- Coordinate with the City of Norwalk regarding site access logistics.
- Update the existing site-specific Health and Safety Plan to incorporate the planned field work.
- Notify the RWQCB and City of Norwalk a minimum of one week in advance of the planned field activities.
- Mark the proposed boring locations.
- Notify Underground Service Alert (USA). As required by USA, the borings will be called-in and marked-out in white paint at least two business days prior to drilling.
- Obtain the required boring/well permits from the Los Angeles County Department of Public Health (LACDPH).
- Perform an underground utility check using a private utility-locating subcontractor. CH2M HILL and a private utility-locating subcontractor will meet with KMEP operations staff, mark-out the 10 investigation locations, and clear the boring locations of potential underground utilities and other infrastructure.
- Coordinate with KMEP personnel to arrange for a KMEP field inspector to be present during field activities in the vicinity of KMEP pipelines, if necessary.

The proposed drilling and sampling locations will be finalized in the field based on the results of the private utility-locating surveys and USA mark-outs.

Field and Laboratory Work

CH2M HILL will perform the following fieldwork and laboratory coordination work.

Direct-Push Soil Sampling and Lithologic Logging

CH2M HILL and a drilling subcontractor will drill using direct-push methods to collect soil samples for lithologic logging, field screening with a PID, and laboratory analysis. Prior to drilling, each boring will be cleared using hand-auger methods to approximately 10 feet bgs to check for the potential presence of underground utilities and other obstructions.

After hand augering, each boring will be advanced to a depth of approximately 30 feet bgs, where the top of groundwater is expected to be encountered. Soil will be continuously cored. The lithology will be described by a CH2M HILL field geologist under the direction of a State of California Licensed Professional Geologist. Soil will be described using visual manual procedures of American Society for Testing and Materials (ASTM) D2488, which are based on the Unified Soil Classification System (USCS) for guidance. Color, moisture content, grain size, and other pertinent soil characteristics will be recorded on boring logs. Soil will be screened in the field for the potential presence of VOCs using a PID.

Hollow-Stem Auger Drilling and Monitoring Well Construction

CH2M HILL and a drilling subcontractor will drill and install one permanent monitoring well (GMW-O-24) approximately 100 feet northeast of extraction well GMW-O-18 in Holifield Park. The subcontractor will advance a nominal 10-inch diameter boring, using the hollow-stem auger method, to facilitate construction of one 4-inch diameter polyvinyl chloride (PVC) well to an approximate depth of 45 feet bgs. The auger diameter should yield a borehole diameter of at least 10 inches to allow for the placement of a sufficient filter pack and annular seal for monitoring well construction. Continuous soil samples will be collected using a decontaminated split-spoon sampler, starting at 10 feet bgs, to the total depth of the well boring (50 feet bgs).

The well will be constructed of 4-inch diameter, Schedule 40 PVC casing, followed by 20 feet of 0.010-inch slot PVC well screen and a 5-foot PVC sump (Figure 3). A filter sand pack, RMC Lone Star No. 2/12 or equal, will be installed around the annulus from total depth to a minimum of 2 feet above the well screen. No. 60 gradation transition sand will be installed around the annulus immediately above the filter pack with a minimum thickness of 3 feet. Bentonite pellets will be installed and hydrated above the filter pack with a minimum thickness of 5 feet. The bentonite pellets will be allowed to hydrate a minimum of 1 hour prior to conducting other well completion tasks (grouting, pad completion, etc.) The borehole annulus will be filled to the surface with grout, consisting of Portland cement with 5 percent bentonite, after the bentonite seal is installed.

The well will be completed as a flush-mount well. Flush-mount completion will include an Emco-Wheaton 12-inch diameter well vault or equivalent, with a 24-inch diameter (from well centerline), 4-inch thick concrete apron, and locking well cap.

Development activities will commence no earlier than 24 hours and no later than 48 hours after installation of the annular seal. The wells will be developed until the groundwater indicator parameters such as pH, specific conductance, temperature, and turbidity have stabilized as determined by the CH2M HILL onsite representative. All development water will be collected in drums provided by the subcontractor, then transported by the subcontractor to SFPP's groundwater treatment system containment pad.

Discrete-Depth Soil Sampling and Laboratory Analysis

Discrete-depth soil samples will be collected at each boring location (SB-1 to SB-9) and the monitoring well location (GMW-O-24) for field screening using a PID and laboratory analysis as follows:

- Soil samples will be collected at approximately 0.5 foot and 5 feet bgs during hand augering activities using a stainless steel slide hammer with stainless steel sleeves.
- During direct-push boring advancement, soil samples will be collected from the continuous cores (in acetate sleeves) every 5 feet from 10 feet bgs to the top of the water table (approximately 30 feet bgs).
- During split-spoon sampling at GMW-O-24, soil samples will be collected from the continuous cores (in stainless steel sleeves) every 5 feet from 10 feet bgs to approximately 50 feet bgs.
- At least three subcore samples within each 5-foot soil core from hand augering, direct-push, or split-spoon sampling (as described above) will be collected using an EnCore or Terra Core sampling device. One of these three samples will be submitted to the laboratory for chemical analysis based on the sample with the highest field headspace PID reading from co-located soil samples placed into a zip-lock bag. The soil core will initially be screened with a PID upon retrieval from the subsurface by moving the PID along the soil core. The three EnCore or Terra Core samples will be selected from the intervals that have the highest initial PID readings, or have visual evidence of hydrocarbon staining. If organic vapors are not detected in the field with the PID during the headspace readings, then only one subcore sample within the 5-foot core will be analyzed. The PID will be calibrated in the field according to the manufacturer's specifications using 100 parts per million (ppm) isobutylene.
- For quality assurance/quality control (QA/QC) purposes, one or more field duplicate groundwater samples will be collected (a minimum of 1 for each 10 soil samples); an equipment blank sample will be collected for each piece of nondedicated sampling equipment each day; and a laboratory-provided trip blank will be maintained with each cooler containing soil samples.
- Samples will be placed in an ice-chilled cooler and submitted under chain-of-custody procedures to an analytical laboratory certified under the California Environmental Laboratory Accreditation Program.

The soil samples (including field duplicate samples) and the equipment blank sample will be analyzed for:

- TPH-g (C4-C12), TPH-d (C13 to C22), and TPH quantified as oil (TPH-o) (C23 to C32) using EPA Method 8015M
- VOCs and fuel oxygenates using EPA Method 8260B

The trip blank will be analyzed for VOCs and fuel oxygenates only.

Boring Destruction and Survey

After lithologic logging and soil sampling is complete, each temporary soil boring will be destroyed by backfilling with bentonite cement placed through a tremie pipe. Ground surface at each boring location will be repaired to reasonably match surrounding conditions.

Following completion of the field investigation, the nine temporary soil borings and monitoring well GMW-O-24 will be surveyed by a licensed surveyor (Dulin and Boynton). The borings and monitoring well will be surveyed for location and elevation. The surveyors report will be in the required format to upload to the RWQCB's GeoTracker Web site.

Equipment Decontamination

Drilling equipment will be steam-cleaned using potable water prior to use. Sampling equipment will be cleaned before each use by washing with an Alconox-water solution and double-rinsing with potable water.

Investigation-Derived Waste Management

Waste generated during the investigation, including equipment wash and rinse water and soil cuttings, will be separately contained in Department of Transportation (DOT)-approved 55-gallon steel drums. The drums will be transported to SFPP's groundwater treatment system containment pad at the end of each day. Equipment rinse and wash water will then be transferred to the containment pad sump for eventual treatment and discharge.

A composite sample of the soil cuttings will be collected and sent to a certified laboratory for waste disposal profiling purposes. The drummed soil cuttings will be disposed at an offsite, permitted facility. CH2M HILL will coordinate with the waste hauler to verify the laboratory parameters that need to be analyzed to meet waste profiling requirements.

CH2M HILL will properly label each drum as the wastewater and soil cuttings are generated. The following label will be filled-out and placed on the soil-filled drums: "Non-Classified Waste Material, Laboratory Analyses in Progress."

Data Analysis and Reporting

CH2M HILL will prepare a report for submittal to the RWQCB that describes the results of the investigation, along with findings and conclusions. The report will include the following:

- Background, purpose, scope of work, field and laboratory methods, and results
- Site location, boring location, laboratory results, lithologic cross section, and plume figures
- Table summarizing the laboratory analytical results
- Appendices with the county and city permits, boring logs, and laboratory reports

Risk assessment and development of soil cleanup goals will not be included in the letter report. This work will be performed after confirming there are no additional data needs identified from the results of the work described in this work plan. The risk assessment and

development of soil cleanup goals will include the methodology described in the RWQCB's 1996 *Interim Site Assessment and Cleanup Guidebook*[10].

Schedule

CH2M HILL anticipates initiating implementation of this work plan upon receiving approval from the RWQCB. A report summarizing the results of this investigation will be prepared and submitted to the RWQCB within 60 days of receiving final laboratory analytical results.

If you have any questions regarding this work plan, please contact Mr. Dan Jablonski/ CH2M HILL at (213) 228-8271, or Mr. Stephen Defibaugh, KMEP's Remediation Project Manager, at (714) 560-4802.

Sincerely,

CH2M HILL, Inc.

Dan Jablonski
Project Manager

Mark Wuttig, P.G.
Senior Hydrogeologist

Attachments:

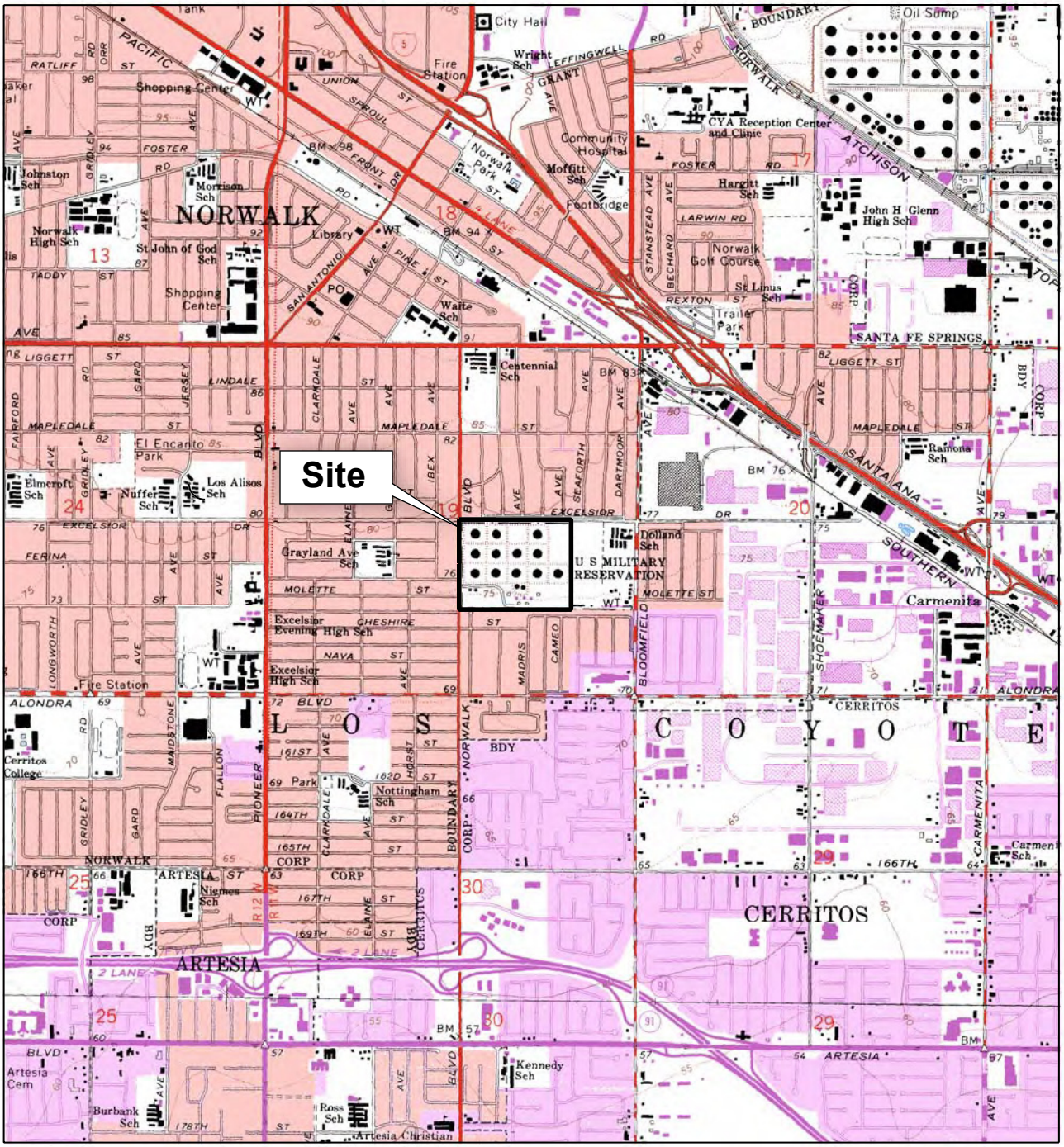
Figure 1: Site Location Map
Figure 2: Proposed Soil Boring and Monitoring Well Locations
Figure 3: Well Completion Diagram

Distribution List

Mr. Steve Defibaugh, KMEP
LTC Tam Gaffney, DLA Energy
Mr. Matt Young, DLA Energy
Mr. Redwan Hassan, Parsons
Ms. Mary Lucas, Parsons
Ms. Mary Jane McIntosh, RAB
Dr. Eugene Garcia, RAB
Mr. Bob Hoskins, RAB
Ms. Tracy Winkler, RAB
Mr. Everett Ferguson, WRD
Ms. Ly Phuong, WRD
Ms. Minxia Dong, Norwalk Regional Library
Ms. Adriana Figueroa, City of Norwalk
Mr. Norman Dupont, Richards/Watson/Gershon
Mr. Charles Emig, City of Cerritos
Mr. Gary Lynch, Park Water Company
Office of Congresswoman Grace F. Napolitano
Mr. Tim Whyte, URS

[10] California Regional Water Quality Control Board. 1996. *Interim Site Assessment and Cleanup Guidebook.* California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4. May.

Figures



N

Approximate Scale in Feet

0 1200 2400

0 0 0

Approximate Scale in Meters

SITE LOCATION MAP

SFPP Norwalk Pump Station
Norwalk, California

By: Andy Vollmar	Date: July 21, 2010	Project No: 407609

CH2MHILL

Figure 1

BASEMAP MODIFIED FROM U.S.G.S. 7.5 MINUTE QUADRANGLE MAP
LOS ALAMITOS 1964, CALIFORNIA. PHOTO-REVISED 1981.
WHITTIER 1965, CALIFORNIA. PHOTO-REVISED 1981.

ES070610212914SCO407609.A1.03 DFSP_sitelocation.ai 7/10

LEGEND

- Proposed Monitoring Well
- Proposed Soil Boring
- GMW-5 — Existing Groundwater Monitoring Well
- VE-1 — Existing Remediation Well
- KMEP Remediation Piping Layout (above ground and below ground)
- Horizontal Vapor Extraction Well Piping
- Approximate Location of Air Compressor Shed

N

120 60 0 120 Feet

Diesel Fuel Release Area

Intermediate 24-inch Block Valve

Southeastern 24-inch Block Valve

ADMINISTRATION BUILDING

LABORATORY BUILDING

OIL WATER SEPARATOR

TRUCK FILL YARDS

KINDER MORGAN LEASE AREA

SUMP

THORNLAKE AVE

CHESHIRE ST

MADRISS AVE

CLARETT AVE

CAMEO AVE

Proposed Soil Boring and Monitoring Well Locations

SFPP Norwalk Pump Station
Norwalk, California

By: Scott Wolfskill	Date: 5/10/2012	Project No: 406972

CH2MHILL

Figure 2

\\CONIAGROUP\SEMS\PROJECTS\NORWALK\MAPFILES\2012\SYSTEMLAYOUT\SFPP_PROPOSED_MW_SB2012_05.MXD SWOLFSKI 5/11/2012 9:55:33 AM

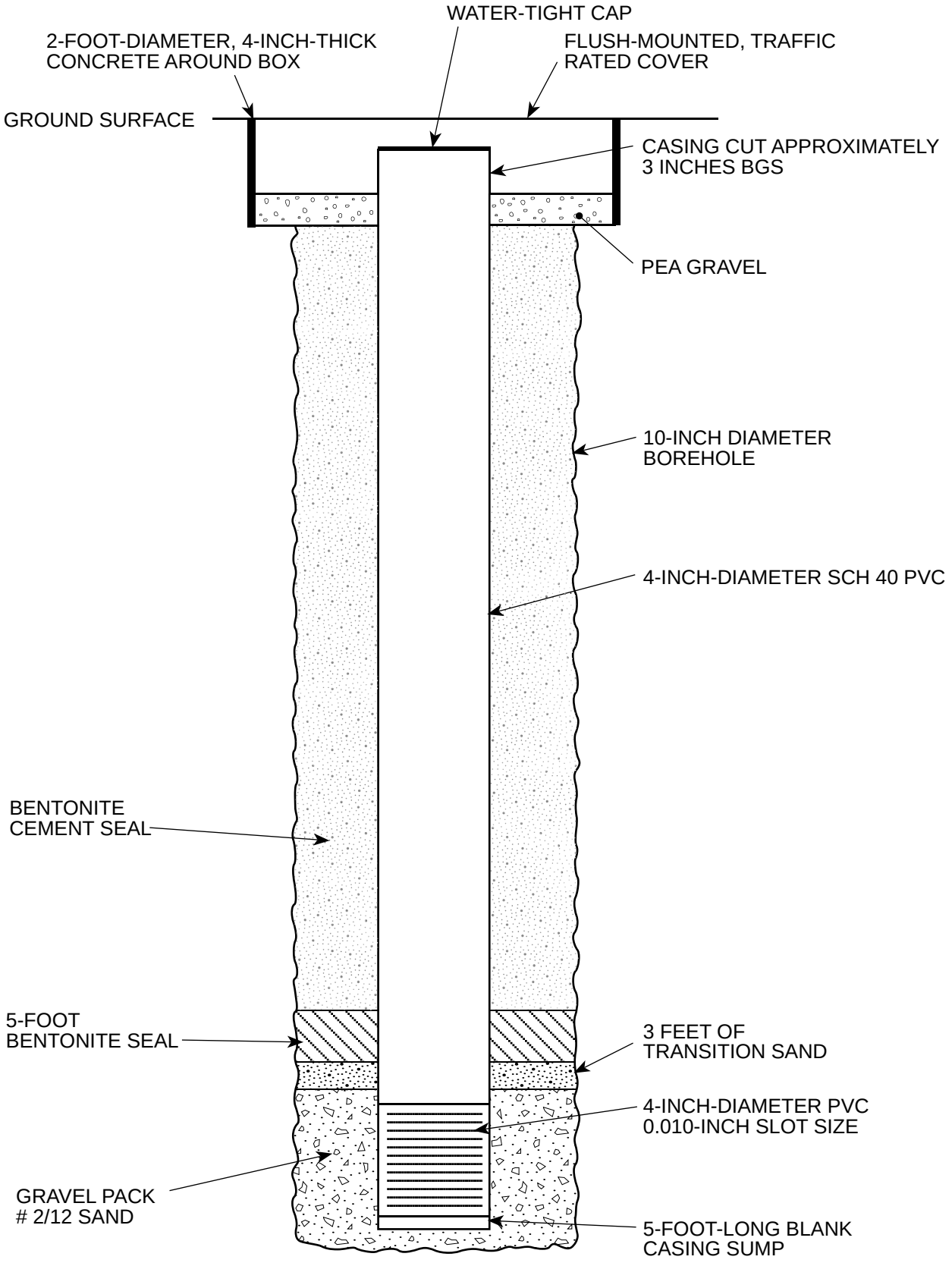


FIGURE 3
Well Completion Diagram
SFPP Norwalk Pump Station, Norwalk, CA

NOT TO SCALE

ES050912223057SCO433675.B1.01 Well_Completion_Diagram.ai

CH2MHILL