

JUL 19 2002

**WORKPLAN:
SITE INVESTIGATION &
FREE-PRODUCT REMOVAL**

**USPS GMF/VMF
1675 7TH STREET
OAKLAND, CALIFORNIA**

Prepared for

**United States Postal Service
1675 7th Street
Oakland, California**

prepared by

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July 17, 2002
575-2G007

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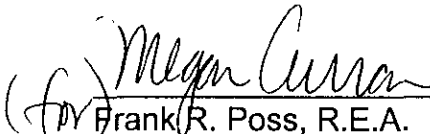
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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

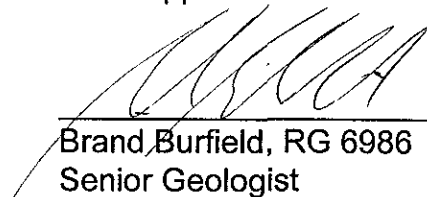
Information provided in this Workplan, prepared by Professional Service Industries, Inc. (PSI), is intended exclusively for the use of USPS for the evaluation of subsurface conditions as it pertains to the subject site. The professional services proposed are to be performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work to be conducted will identify any or all sources or locations of contamination.

PSI reserves the right to deviate from the proposed scope of services outlined in this Workplan as needed to obtain the required information. If such deviation is necessary, PSI will seek prior approval from the client and the regulatory agency overseeing this project.

This Workplan is issued with the understanding that USPS is responsible for ensuring that the information contained herein is brought to the attention of the appropriate regulatory agency. This Workplan has been reviewed by a geologist who is registered in the State of California and whose signature and license number appears below.



(for) Frank R. Poss, R.E.A.
Senior Hydrogeologist



Brand Burfield, RG 6986
Senior Geologist

1.0 INTRODUCTION

Professional Service Industries, Inc. (PSI) has been retained by the United States Postal Service (USPS), to prepare this Workplan to assess the extent of impacted groundwater and to remove free-floating product at the USPS Vehicle Maintenance Facility (VMF) in Oakland, California (site; Figure 1). The work presented herein is to be conducted in accordance with Contract Number 052571-01-J-0014 and Project Authorization Number 2-1F-055509-E-554.

The proposed scope of work for this investigation includes:

- Drilling 1 soil boring,
- Chemical analyses of one groundwater sample,
- Removal of free-product, and
- Preparation of a technical report describing the investigation and interpreting the data generated.

1.1 PROJECT OBJECTIVE

During quarterly groundwater monitoring at the site conducted by PSI in the first and second quarters, 2002, it was noted that monitoring well MW-4 had approximately 2 to 3 inches of free-floating product. The objective of this project is to evaluate the hydraulically down-gradient extent of impacted groundwater at the site and to remove free-floating product from monitoring well MW-4.

2.0 SUBSURFACE INVESTIGATION

This section describes the methodology that will be implemented during the groundwater investigation. The objectives of the sampling procedures are to provide an accurate assessment of the current groundwater conditions and to minimize the potential for cross-contamination during sampling operations.

2.1 SOIL BORINGS

One soil boring is scheduled to be drilled to investigate the groundwater quality hydraulically downgradient of MW-4. The proposed boring location is presented in Figure 2. A State of California licensed driller will provide the drilling services. The borings will be drilled by the Geoprobe direct-push drilling technique. Soil samples will be collected at 5 foot intervals for lithologic-logging purposes only. Fieldwork for drilling and soil sampling activities will be conducted in accordance with the field procedures described in Appendix A. Following drilling and sample collection, the borings will be grouted with neat cement according to State and local guidelines.

2.2 SOIL SAMPLING PROTOCOL

Soil samples will be collected by a PSI geologist working under the supervision of a State of California Registered Geologist. The samples will be collected in 4.0-foot long clear acetate tubes. Upon retrieval of the sampler, a representative soil sample will be collected for logging purposes.

2.3 SOIL CLASSIFICATION

Soil will be described by a PSI geologist and recorded on a field-boring log. The data recorded on the logs will be based on examination of soil samples retrieved and drilling conditions observed in the field. Boring logs will include information regarding the location of the boring, type of sampler used, and geologic descriptions of materials encountered.

Soils will be classified in general accordance with the Unified Soil Classification System. Other information to be recorded on the logs will include indications of contamination and the occurrence of groundwater. Organic vapor analyzer (OVA) measurements for soil samples will be recorded on the field boring logs.

2.4 TEMPORARY PIEZOMETER INSTALLATION

Following drilling of the borehole, PSI will install a temporary piezometer through the direct-push hollow metal casing. The piezometer casing will consist of 3/4-inch inside diameter, Schedule 40 PVC casing with 0.020-inch machine-slotted screen. The length of screen is expected to be 10 feet. Based on an anticipated depth to groundwater of 7 feet, the slotted screen casing will be placed between 2 and 12 feet below the ground surface. The temporary piezometer will be in place for no more than 24 hours.

2.5 GROUNDWATER SAMPLING

Prior to collecting a groundwater sample, the temporary piezometer will be sounded using a groundwater interface probe to determine whether free-floating product is present. Following the sounding, a groundwater sample will be collected using a single-use disposable bailer. The groundwater sample will be collected using the temporary piezometer casing as a guide. Groundwater sampling will be conducted in accordance with the procedures described in Appendix A.

Following groundwater sample collection, the sample will be logged on a chain-of-custody record and stored in an ice chest. Sample preservatives will be utilized as instructed by the analytical laboratory. All transportation and handling of the groundwater sample will follow chain-of-custody protocol.

2.6 DECONTAMINATION PROCEDURES

Decontamination procedures will be implemented to maintain sample integrity and to prevent cross-contamination between sampling locations. All re-usable equipment will be cleaned with a non-phosphate detergent and rinsed twice with deionized water prior to use at a new sampling location. Sampling equipment includes:

- Stainless-steel sampling equipment,
- Drilling equipment, and
- Groundwater sampling equipment

3.0 FREE-PRODUCT REMOVAL

PSI will perform free product removal at the site by using absorbent socks that will be installed within monitoring well MW-4. The absorbent sock will be placed in the well and will be periodically removed when maximum absorption has been completed. The recovered fuel will be placed in a 55-gallon drum until the drum is full or until free-product removal is complete. Following completion of the free-product removal, PSI will remove the drum and dispose of the recovered fuel at an appropriate disposal facility.

4.0 LABORATORY ANALYSIS PROGRAM

The groundwater sample collected during this investigation will be submitted to a State of California Department of Health Services certified hazardous waste laboratory. A summary of the types of analyses and analytical methods to be performed is presented below.

The groundwater sample collected will be analyzed for the following constituents:

- EPA Method 8015 modified – Total Petroleum Hydrocarbons as Gasoline (TPH-G)
- EPA Method 8015 modified – TPH as Diesel (TPH-D), and
- EPA Method 8260 – Volatile Organic Compounds (VOCs); including MTBE and oxygenates.

5.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL

The following equipment calibration procedure and field documentation procedures will be implemented by PSI field personnel.

5.1 SAMPLE IDENTIFICATION

The groundwater sample collected in the field will be labeled according to standard protocol, as described in Appendix A.

5.2 CHAIN-OF-CUSTODY PROCEDURES

Chain-of-Custody records will be used to document sample handling and shipping procedures. Chain-of-Custody records will trace the samples from collection, through any custody transfers to the analytical laboratory. Information recorded on the Chain-of-Custody records will include location of sample collection, sample identification, number, date and time of collection, number and type of sample containers, and analyses requested. The shipping conditions will also be described on the Chain-of-Custody records. The name of the sampler(s) as well as the name of the person relinquishing the samples will be documented. Chain-of-Custody procedures are described in Appendix A.

5.3 FIELD INSTRUMENTS

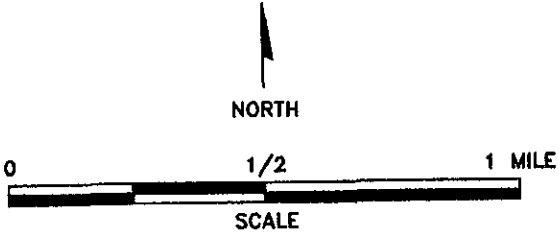
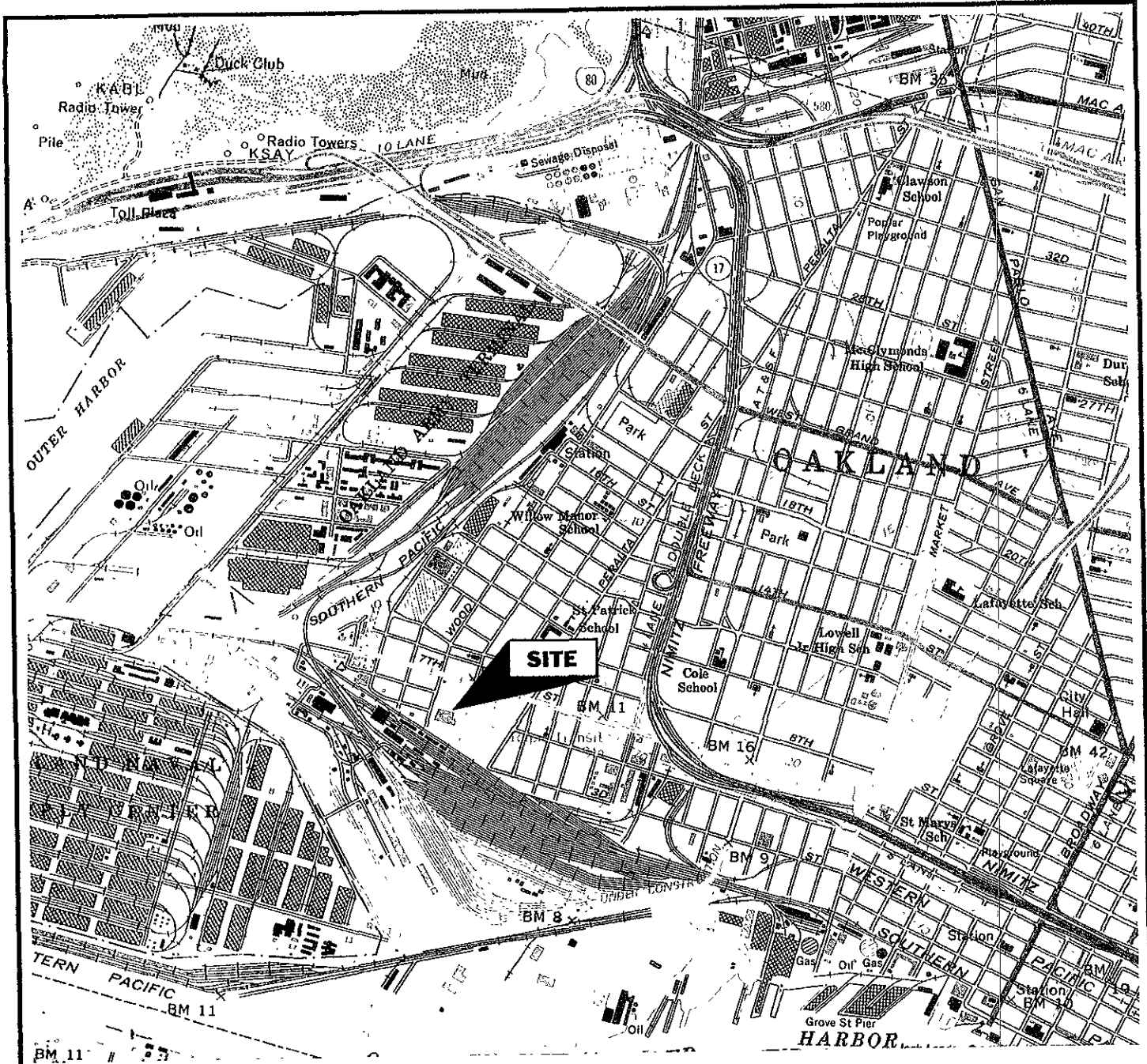
An organic-vapor analyzer (OVA) will be used in the field for health and safety monitoring, as well as site assessment purposes. The OVA will be calibrated prior to its use at the site using a reference calibration gas. Calibration gas is pre-bottled by a laboratory supply house and has a listed calibration value in parts per million for each specific gas. The OVA will be used as an indicator of total petroleum hydrocarbons in soil samples and for health and safety purposes.

6.0 SITE INVESTIGATION REPORT PREPARATION


Upon completion of the field activities described in this workplan, a report will be prepared presenting the investigative methodology implemented, findings, and conclusions for the subject site. The report will include the following elements:

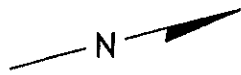
- Title sheet,
- Signature page,
- Table of contents,
- Investigative summary,
- Introductory narrative of the project,
- File review information,
- Investigative methods,
- Investigative results and field observations,
- Data evaluation and discussion,
- Graphs, Tables and Figures,
- Summary table (s) indicating laboratory results,
- Contaminant concentrations, analytical methods, and detection limits,
- Copies of original laboratory documentation,
- Field procedure forms, and chain-of-custody records,
- Conclusions, and
- Recommendations.

FIGURES



REFERENCE:
 U.S.G.S. OAKLAND WEST
 CALIFORNIA, 7.5 MINUTE
 SERIES TOPOGRAPHIC MAP,
 DATED 1959, PHOTOREVISED
 1980.

 Information To Build On <i>Engineering • Consulting • Testing</i>		4703 Tidewater Avenue, Suite B Oakland, California 94601 (510) 434-9200		
		Project Name: USPS VEHICLE MAINTENANCE FACILITY 1875 7th STREET, OAKLAND, CALIFORNIA	Drawn By: B.W.B.	Date: 7/02
Title: SITE LOCATION MAP		Approved By: F.P.	Project No.: 575-2G007	



VEHICLE MAINTENANCE FACILITY (VMF)

VMF OFFICES

SIDEWALK →

PROPOSED BORING

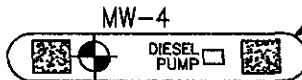


CANOPY →

MW-3



FUEL DISPENSER ISLANDS



MW-1

GROUNDWATER FLOW DIRECTION
GRADIENT = 0.01

MW-2

LEGEND:

MW-4 - APPROXIMATE MONITORING WELL LOCATION

- APPROXIMATE LOCATION OF PROPOSED BORING

0 20 40ft



APPROXIMATE SCALE

PSI Information
To Build On
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Oakland, California 94601
(510) 434-9200

NOTE: BASE MAP TAKEN FROM FIELD SURVEY PERFORMED BY PSI ON JUNE 18, 2002.

Project Name: OAKLAND VEHICLE MAINTENANCE FACILITY
1675 7th STREET, OAKLAND, CALIFORNIA

Drawn By: B.W.B.

Date: 7/02

File No.: 2G007-05

Figure No.:

Title: SITE PLAN AND PROPOSED BORING LOCATION MAP

Approved By: F.P.

Project No.: 575-2G007

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APPENDIX A

STANDARD FIELD PROCEDURES

APPENDIX A
STANDARD FIELD PROCEDURES

I. DRILLING OF SOIL BORINGS AND COLLECTION OF SOIL SAMPLES

The following procedures will be used for the drilling and sampling of the soil borings drilled at the site:

1. Drilling will be conducted by a licensed State of California driller under the supervision of PSI. Drilling equipment will be pressure washed at the beginning of the day and between soil borings.
2. Prior to the commencement of drilling activities at the site, Underground Service Alert (USA) will be contacted to identify underground utilities in the areas that the borings will be located.
3. Boring logs for the soil borings drilled at the site will be prepared under the supervision of a State of California Registered Geologist. The soil cuttings observed during drilling will be described in accordance with the Unified Soil Classification System.
4. Soil samples will be collected using a 2.5-inch diameter stainless steel sampler. When the boring has been advanced to the appropriate sampling depth, a 2.5-inch diameter sampler lined with clear acetate tubes, will be placed in the open boring. When the sampler is advanced to the appropriate depth, the tip will be retracted and an undisturbed soil sample will be collected by driving the sampler into the subsurface using a percussion hammer.
5. Once the sampler has been retrieved the ends of the sample tube will be covered with Teflon sheets and capped with polyethylene end caps. The sample will be labeled and placed in a zip-lock bag in a chilled cooler pending delivery to the laboratory for analysis.
6. Soil samples will be assigned identification numbers such as B1-5.0, where B1 indicates the boring number and -5.0 indicates that the sample was collected at 5.0 feet bgs from boring B-1. The samples will be labeled with the sampling designation, depth, date, client name, and project number.

7. Soil samplers will be washed between sampling intervals with Alconox soap followed by two deionized-water rinses.
8. Chain-of-custody procedures using chain-of-custody forms will be used to document sample handling and transportation.
9. An organic vapor analyzer (OVA) will be used to monitor volatile organic compounds (VOCs) in the ambient air during drilling at the site in accordance with the site health and safety plan. VOC concentrations in the soil will be measured and recorded on the borings logs for depths that soil samples were collected. VOCs in the soil will be measured at each sampling depth by partially filling a capped sampling tube with soil. The components of the soil are allowed to volatilize and fill the headspace in the tube prior to inserting the OVA probe through one of the end caps and recording the measurements.
10. Soil cuttings and steam wash water generated during drilling activities at the site will be contained in Department of Transportation (DOT) approved 55-gallon drums. The drums will be labeled with the contents, date, well or boring number, client name, and project number.

II FIELD DOCUMENTATION OF SAMPLING PROCEDURES

The following outline describes the procedures adhered by PSI for proper sampling documentation.

1. Sampling procedures will be documented in field notes that will contain:
 - a. Sample collection procedures
 - b. Date and time of collection
 - c. Date of shipping
 - d. Sample collection location
 - e. Sample identification number(s)
 - f. *Intended analysis*
 - g. Quality control samples
 - h. Sample preservation
 - i. Name of sampler
 - j. Any pertinent observations

2. Samples will be labeled with the following information:

- a. Sample number
- b. Well/boring number
- c. Date and time sample was collected
- d. Sampler's name
- e. Sample preservatives (if required)

3. The following is the sample designation system for the site:

For Borings, the samples will be labeled B-(Boring Number)-(Depth) (i.e. sample collected from boring 1 at 5 feet would be B1-5.0)

For groundwater samples (W) (Boring Number) (i.e. WB1)

4. Handling of the samples will be recorded on a chain of custody form, which shall include:

- a. Site name
- b. Signature of Collector
- c. Date and time of collection
- d. Sample identification number
- e. Number of containers in sample set
- f. Description of sample and container
- g. Name and signature of persons, and the companies or agencies they represent, who are involved in the chain of possession
- h. Inclusive dates and times of possession
- i. Analyses to be completed

III. GROUNDWATER SAMPLING

The following are procedures were implemented while performing water sampling.

1. All equipment will be washed prior to entering the well with an Alconox solution, followed by two tap water rinses and a deionized water rinse.
2. Prior to sampling, depth-to-water will be measured using a Solinst groundwater interface probe to an accuracy of approximately 0.01 foot.

3. Water samples will be collected with a single-use Teflon bailer. The water collected will be immediately decanted into laboratory-supplied vials and bottles. The containers will be overfilled, capped, labeled, and placed in a chilled cooler prior to delivery to the laboratory for analysis.
4. Chain-of-custody procedures, including chain-of-custody forms, will be used to document water sample handling and transport from collection to delivery to the laboratory for analyses.
5. Groundwater samples will be delivered to the State-certified hazardous waste laboratory within approximately 48-hours of collection.