

2016

December 30, 2002

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

**RE: Historic Summary Report and Closure Request
USPS GMF/VMF
1675 7th Street
Oakland, California
Fuel Leak Case: RO0000016
PSI Project No.: 575-2G007**

Alameda County
JAN 02 2003
Environmental Health

Dear Mr. Chan:

On behalf of the United States Postal Service, Professional Service Industries, Inc. is pleased to present this Historic Summary Report and Closure Request for the Vehicle Maintenance Facility site in Oakland, California. PSI refers you to the report for details.

If you have any questions regarding this report or any aspect of the project, please do not hesitate to call.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.



Frank R. Poss
Senior Technical Professional

cc: Mr. Rolando Queyquep, United States Postal Service

Alameda County
JAN 02 2003
Environmental Health

**HISTORIC SUMMARY REPORT
AND CLOSURE REQUEST**

**UNITED STATES POSTAL SERVICE
VEHICLE MAINTENANCE FACILITY
1675 7TH STREET
OAKLAND, CALIFORNIA**

Prepared for

United States Postal Service
1675 7TH Street
Oakland, California

Professional Service Industries
4703 Tidewater Avenue, Suite B
Oakland, California 94601

December 30, 2002
575-2G007

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in Professional Services Industries, Inc., (PSI) report number 575-2G007 is intended exclusively for the United States Postal Service (USPS) for the evaluation of soil and groundwater contamination as it pertains to the subject site. PSI is responsible for the facts and accuracy of the data presented herein. The professional services provided have been 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 conducted will identify any and all sources or locations of contamination.

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



Frank R. Poss, R.E.A.
Senior Hydrogeologist



Brand Burfield, RG 6986
Senior Geologist

1.0 INTRODUCTION

This report was prepared to address the concerns of the Alameda County Health Care Services Agency (ACHCSA) regarding the historic petroleum-hydrocarbon contamination and subsequent remedial activities at the subject site. Historic activity at the site includes underground fuel storage tank (UST) and hydraulic lift removal; excavation of contaminated soil; and soil and groundwater investigations. Additionally, this report documents the installation of downgradient monitoring well MW-6 at the subject site. The work presented herein was conducted in accordance with the referenced Workplan and Addendum to Workplan (PSI, 2002) under USPS Contract Number 052571-01-J-0014 and Project Authorization Number 2-1F-055509-E-554.

1.1 PURPOSE AND SCOPE OF WORK

The purpose of this report is to present a comprehensive summary of past and present environmental assessment and remediation activities conducted at the USPS Vehicle Maintenance Facility (VMF) and demonstrate that regulatory "No Further Action (NFA) status" is warranted for the site.

This Summary Report documents the removal and replacement of USTs (1991-92); the installation of monitoring wells and initial groundwater monitoring program (1993-98); the removal of hydraulic lifts (1999); and the current groundwater monitoring program, free-product removal and installation of Monitoring Well MW-6 (2002) at the USPS VMF in Oakland, California. The scope of work and report inclusions are intended to satisfy the requirements of the ACHCSA as stated in their letters dated April 9, 2001, May 13, and July 19, 2002.

1.2 SITE LOCATION AND DESCRIPTION

The subject site is located at 1675 7th Street in Oakland, California (see Figure 1 – Site Location Map) and consists of a one-story concrete structure with multiple indoor vehicle service bays and attached office space for operations and management. The VMF is surrounded by asphalt-paved parking to the north and west; a truck wash bay and paved parking to the south; and a fueling area and truck loading bays to the east.

1.3 SITE GEOLOGY / HYDROGEOLOGY

Geologic mapping of the area surrounding the subject site indicates that the property is underlain by Quaternary Age dune and eolian sand, (CDMG, 1991). The Alameda County Soil Survey (USDA, 1981), indicates that the site is underlain by loamy sand of the Baywood Complex in an urban land use setting. Our recent subsurface exploration, during the installation of Monitoring Well MW-6, indicates that the subject area is underlain by medium brown sand with varying amounts of silt. The boring log for MW-6 is presented in Appendix A.

Groundwater monitoring at the site was performed from 1993 through 1998 and has been performed quarterly since the beginning of 2002. Based on the last quarterly data (Third Quarter 2002), current groundwater depths range from approximately 8 to 10 feet below ground surface (bgs). During the Third Quarter 2002 monitoring event, the inferred groundwater flow direction was to the southwest at an approximate gradient of 0.007. Groundwater elevations, depth-to-groundwater measurements and groundwater contour maps are included in the referenced quarterly groundwater-monitoring reports (PSI, 2002).

2.0 SUMMARY OF ENVIRONMENTAL SITE ACTIVITIES

2.1 UST REMOVAL

2.1.1 November 1991

Geo/Resource Consultants, Inc. (GRC) supervised underground storage tank (UST) and fuel pump-island removal activities at the subject site in November, 1991 (GRC, April 1992). USTs removed from the site included two 10,000-gallon diesel USTs, one 5,000-gallon gasoline UST, and a 750-gallon waste-oil UST (see Figure 3). A small hole the size of a quarter was identified in the gasoline UST. No ground water was encountered at or above the lowest point of excavation, which was 16 feet below ground surface (bgs). Strong hydrocarbon odors and visible contamination were noted within the fuel-tank excavations. Overexcavation of contaminated soil from the gas UST pit was performed. Soil samples collected from beneath the ends of the three fuel USTs and the removed gasoline dispenser island and product lines confirmed that elevated levels of Total Petroleum Hydrocarbons as diesel and gasoline (TPH-D and TPH-G), Benzene, Toluene, Ethyl Benzene, and Total Xylenes (BTEX) were present. No odor or discoloration of soil were evident in the waste-oil tank excavation. Dichloromethane, Benzene and five metals, were detected in the soil sample collected from beneath the waste-oil UST. Excavated soils were stockpiled for off site disposal and the excavations were backfilled with imported fill. A summary of the soil analytical results associated with the tank removal is presented in Table 1.

Concurrent with the UST removal, GRC supervised the installation of three new 12,000-gallon USTs. The new tanks were installed near the southwest corner of the USPS multi-story vehicle parking lot (see Figure 2).

A Lowney Associates report (LA, 1999;b) indicates that subsequent overexcavation of hydrocarbon-impacted soil in the area of the two removed diesel USTs was performed in the Summer of 1992. It is not known if soil sampling and testing of soil was performed for this overexcavation.

2.1.2 June 1992

GRC removed one additional 10,000-gallon Diesel UST on June 23, 1992 (GRC, September 1992). The tank was located adjacent to the northwest corner of the mail-sorting building (see Figure 2), and was observed to have no signs of pitting or corrosion. Groundwater was encountered within the excavation at approximately 12 feet bgs. Soil samples collected from beneath the north and south ends of the UST were below the laboratory level of detection for TPH-D and BTEX. Analysis of the groundwater sample collected from the excavation indicated the presence of TPH-D at 72 parts per million (ppm), Benzene at 3.8 parts per billion (ppb), and Xylenes at 12 ppb. A summary of the analytical results associated with this tank removal is presented in Table 1.

2.2 MONITORING WELL INSTALLATION – MW-1 THROUGH MW-5

A subsurface investigation was performed at the site in September, 1993 by Harding Lawson Associates, which included nine soil borings and associated soil sampling (LA, 1999;b). Twenty-five soil samples were collected from the nine borings and were analyzed for TPH-G, TPH-D and BTEX. The analytical results for the soil samples are summarized below;

- TPH-G - detected in two samples (maximum concentration of 180 ppm)
- TPH-D - detected in two samples (maximum concentration of 2,400 ppm)
- Benzene - detected in two samples (maximum concentration of 0.15 ppm)
- Toluene - detected in one sample (maximum concentration of 0.35 ppm)
- Ethyl benzene - detected in one sample (maximum concentration of 2.1 ppm)
- Xylenes - detected in three samples (maximum concentration of 13 ppm)

A map showing the locations of the borings and a full list of analytical results were not available for our review.

Five of the soil borings were converted into groundwater monitoring wells, installed to depths of approximately 20 feet bgs each. MW-1 was installed adjacent to and upgradient of the USTs removed in November 1991, and MW-2, MW-3 and MW-4 were installed downgradient of these USTs. MW-5 was installed downgradient of the diesel tank that was removed in June 1992. The approximate locations of groundwater monitoring wells MW-1 through MW-5 are shown on Figure 2.

2.3 GROUNDWATER MONITORING – 1993 TO 1998

The initial groundwater-monitoring program began after the installation of monitoring wells in September, 1993 and included analysis for TPH-G, TPH-D and BTEX. Based on information provided in an October 1999 Lowney Associates report (LA, 1999;b), this initial program appears to have continued through the end of 1998. Groundwater monitoring results available to our office for this summary include only data from September 1993 through November 1996. A summary of these historic groundwater analytical results is presented in Table 2.

Monitoring well MW-5, which had no contaminants detected in the first year of quarterly sampling, was abandoned in January 1995 with the approval of the ACHCS. Except for one detection of benzene (at 0.8 ppb in MW-3), no TPH-G or BTEX contaminants were detected in MW-1, MW-2 or MW-3 over the first two years of monitoring. In contrast, TPH-G and BTEX compounds were commonly detected in MW-4. The Lowney report states that in March 1996, the ACHCS approved the discontinuation of TPH-G and BTEX testing for MW-1, MW-2 and MW-3 and the reduction of the sampling frequency to biannual.

Between the June 1994 and February 1995 sampling events, TPH-D concentrations in the four remaining wells increased significantly. The TPH-D concentration in MW-4 (the well

with the highest levels) jumped from 260 to 1,100 ppb, and levels in MW-2 and MW-3 rose from "non detect" to 280 and 350 ppb respectively. MW-1, which had also been non detect prior to June 1994, jumped to 600 ppb. TPH-D levels in MW-1, MW-2 and MW-4 peaked at the June 1995 sampling event. Free product in MW-4 was first reported in August 1995, however a review of the analytical results indicates that it was present at the previous (June 1995) sampling event. No free product has ever been reported in any of the other monitoring wells. Since February 1995, TPH-D has been detected regularly in MW-1 through MW-4, with the highest levels detected in MW-4.

In the files reviewed at the USPS and the ACHCS, there was no indication that testing of groundwater from the wells was performed between the end of 1998 and the beginning of the current groundwater monitoring program (see Section 2.5 below) in March 2002.

2.4 HYDRAULIC LIFT REMOVAL

In August 1999, Lowney Associates performed a sampling and analysis program at the interior of the Oakland VMF to evaluate the extent of impacted soil and groundwater around the former location of three hydraulic lifts that had been removed. Six borings (EB-1 through EB-6) were advanced to depths of between 15 and 20 feet bgs, with two borings located adjacent to each hydraulic lift (see Figure 3). Soil and groundwater samples were analyzed for total recoverable petroleum hydrocarbons (TRPH) and BTEX. TRPH (tested to check for hydraulic oil) was detected in five of the six soil samples (up to 48,000 ppm in EB-3) and all three groundwater samples (up to 61 ppm in EB-1). BTEX compounds were detected in two of the soil samples and all three of the groundwater samples. The sampling and analysis report recommended that additional work be performed to evaluate the extent of the soil and groundwater contamination. The ACHCS agreed with the recommendation and requested that an additional subsurface investigation be performed at the site (ACHCSA, 1999).

In March 2000, Lowney directed and logged seven additional soil borings (EB-7 through EB-13) in two locations upgradient and five downgradient of the former locations of the lifts (see Figure 3). One groundwater sample and two soil samples (one near the groundwater interface and one 3 feet above groundwater) were collected from each boring and analyzed for TRPH and BTEX. The analytical results indicate that TRPH and BTEX were not detected above laboratory detection limits in any of the soil or groundwater samples. The report concluded that the impact from the leaking hydraulic lifts is limited to the area immediately surrounding the lifts and that there is no significant migration of contaminants.

The approximate locations of borings EB-1 through EB-13 are shown on Figure 3. A summary of the soil and groundwater laboratory analysis results for the lift removal is presented as Table 3.

2.5 GROUNDWATER MONITORING – 2002 TO PRESENT

The current groundwater monitoring program, initiated in March 2002 by PSI, included quarterly sampling of groundwater from Wells MW-1 through MW-4 for TPH-G, TPH-D, and VOCs (which include BTEX and Methyl Tertiary-Butyl Ether). A summary of these groundwater analytical results is presented in Table 2. Additionally, at the request of the ACHCS, SVOC testing was performed on the March 2002 sample from MW-4.

2.5.1 First Quarter 2002

The analytical results for samples collected from MW-1 through MW-4 in March 2002 indicate that BTEX was not detected in any of the wells. Except for the detection of TPH-D in MW-3 (at 0.54 ppm), TPH-G and TPH-D were not detected in MW-1, MW-2 or MW-3. Due to the presence of free product, analysis of water from MW-4 for TPH-G and TPH-D was not performed. Methyl Tertiary-Butyl Ether (MTBE) was detected in the samples from MW-3 and MW-4, however neither concentration was greater than the primary MCL of 13 micrograms per liter (ug/L). No other VOCs were detected in MW-1, MW-2 or MW-3, however several VOCs and SVOCs were detected in MW-4. Based on the results of this analysis, the ACHCS approved the discontinuation of analysis for SVOCs in MW-4 (ACHCSA, May 2002).

During the first quarterly sampling event, monitoring wells MW-1 and MW-2 were observed to have no protective boxes and MW-2 had no well cap. As a result, both wells were covered with mud and MW-2 was partially filled with mud. In order to protect the environmental viability of these wells, new caps and traffic-rated, protective well boxes were installed for these two wells. Groundwater was purged from these two wells to remove excess sediment.

Upon receipt of the groundwater monitoring report, the ACHCS wrote a letter in May 2002 stating that "...additional information is needed at your site to progress toward case closure." Specific information requested by this letter include the following;

- Clarify data presented in the Tier II Human Health Risk Assessment (LA, 1999;b) and comment on whether or not the conclusions are still valid.
- Sample and characterize the free product found in MW-4.
- Initiate removal of free product from MW-4.
- Delineate free product/petroleum plume.

2.5.2 Workplan

In response to the ACHCS letter, a Workplan was issued (PSI, 2002) which proposed the drilling of one soil boring downgradient of MW-4, the analysis of one groundwater sample collected from this boring and the removal of free product from MW-4. In response to a meeting with the ACHCS and subsequent review of the Workplan (ACHCSA, July 2002),

the scope of work was revised to include collection and field-screening of soil samples for VOCs and conversion of the soil boring into a groundwater monitoring well for periodic sampling. Any soil sample with elevated field readings or other signs of contamination would be sent to a lab for analysis.

The July 2002 Workplan review also referenced an April 2001 ACHCS letter that requested the following items not addressed in the more recent ACHCS submittals;

- A map indicating the location of soil samples from past tank removals and the hydraulic lift locations with respect to the former and existing tanks.
- Tabulation of all soil analytical results.
- Comment on the residual concentrations of hydraulic fluid in soil and groundwater.

2.5.3 Second Quarter 2002

The analytical results for samples collected from MW-1 through MW-4 in June 2002 indicate that BTEX was not detected in any of the wells. MTBE however, was detected in all four wells. The concentrations of MTBE in MW-1, MW-2 and MW-3 were less than the primary MCL of 13 ug/L. TPH-G was detected only in MW-4 and TPH-D was detected in MW-1, MW-3 and MW-4. Additionally, MW-3 and MW-4 each had one additional VOC detected. MW-4 was found to have the highest concentrations of TPH-G (228 ppb), TPH-D (235,000 ppb) and MTBE (14.1 ppb).

Our second quarterly groundwater monitoring report indicates that 4.32 inches of free product were observed in MW-4. In order to effectively characterize the free product, as requested by the ACHCS, product from the water surface in MW-4 was purposely included in the sample sent to the lab for analysis. As a result of the inclusion of free product, it is expected that the concentrations of all contaminants reported in MW-4 for this quarter are greater than are actually present in the groundwater. The analysis results indicate that the free product is diesel fuel.

2.5.4 Free Product Removal

Bulk removal of free product was accomplished on August 29, 2002 by bailing product from the surface of the MW-4 water column with a specially-prepared (capped-bottom) stainless steel bailer. A total of approximately ten (10) gallons of fluid was bailed from the water column surface, with a total free product volume of approximately 1 gallon. Subsequent installation and regular replacement of absorbent socks at the water surface in MW-4 has been performed between August 29 and October 25, 2002 to soak up remaining small quantities of free product from MW-4.

The first four socks were installed at one-week intervals, with the next two socks installed at a two and three-week interval respectively. Upon its removal, the first sock was

observed to have a 2-foot long, dark diesel stain and a moderate diesel odor. After the first week, at the removal of the first and installation of the second sock, there was no longer a measurable height of free product within the well casing. Subsequent socks were observed to have progressively much smaller and lighter stains with lesser odor, and the most recently changed socks appear to be relatively free of product altogether. A field data sheet showing pertinent information regarding the installation of absorbent socks is included in Appendix B.

2.5.5 Monitoring Well Installation – MW-6

In accordance with our referenced Workplan, PSI drilled a soil boring installed monitoring well MW-6 in September 2002. This new well was located approximately 60 feet southwest of wells MW-3 and MW-4 in order to provide a groundwater monitoring point downgradient of the contaminant plume.

Mr. Barney Chan of the ACHCS was present at the site on August 29, 2002, to observe drilling, sampling and field screening of soil. The boring was advanced using a direct-push drill rig operated by V&W Drilling of Rio Vista, California. Soil samples were collected from the soil boring at four-foot intervals in clear acetate sleeves, sealed with teflon tape and plastic end caps and placed in a chilled cooler for possible later shipment to the lab for analysis. Field-screening of the samples, including visual inspection and testing with an organic vapor meter, did not indicate the presence of VOCs. Additionally, no hydrocarbon odor was detected from any of the four samples collected. As no indication of contamination was observed in any of the samples collected, in accordance with the Workplan, they were not sent to the laboratory for analysis. A copy of our field boring log, which includes field-screening information, is included in Appendix A.

At the completion of the MW-6 soil boring, the push-drill equipment became stuck in the hole. In order to remove the drill rod, a larger, hollow-stem auger drill rig was brought to the site on September 12, 2002 and used to drill out the hole to 8-inches in diameter. As a result, MW-6 was installed with a 2-inch (originally intended to be 1-inch) diameter, factory-slotted, PVC casing set to 20 feet bgs. A water-tight, traffic-rated protective well box was installed at the surface. A copy of the well drilling permit and the field installation diagram, showing well-construction details, are presented in Appendix A.

2.5.6 Third Quarter 2002

The analytical results for samples collected from MW-1 through MW-4 and MW-6 in September 2002 indicate that, except for toluene in MW-6, TPH-G and BTEX were not detected in any of the wells. MTBE was detected in MW-2, MW-3 and MW-4, however the concentrations of MTBE detected were less than the primary MCL of 13 ug/L. TPH-D was detected in MW-1, MW-3 and MW-4. Additionally, MW-3 had two additional VOCs detected. MW-4 was found to have the highest concentrations of TPH-D (16,400 ppb) and MTBE (6.5 ppb). Our third quarterly groundwater monitoring report indicates that there was no free product observed in MW-4.

2.5.7 2002 Groundwater Summary

In general, the analytical results for the 2002 groundwater sampling program indicate the following;

- No TPH-G detected in any of the wells except MW-4. Currently no TPH-G in any of the wells.
- TPH-D detected in MW-1, MW-3 (currently less than 1 ppm) and MW-4 (currently 16.4 ppm).
- No BTEX detected in any of the wells except for toluene in MW-6 (3.8 ppb).
- MTBE detected in all wells except MW-6 (currently between 4 and 7 ppb)

A summary of groundwater analytical results is presented in Table 2.

2.6 TIER II HUMAN HEALTH RISK APPRAISAL

2.6.1 Review

A Tier II Human Health Risk Assessment (HRA) was conducted in 1999 by Lowney Associates to evaluate the human-health risks posed by the petroleum-hydrocarbon compounds. The HRA is based on soil and groundwater quality data included in the June 1997 Request for Site Closure prepared by Harding Lawson Associates (HLA). Health risk was assessed using the Risk Assessment Guidance (RAGS), Department of Toxic Substances Control supplemental guidance, and Risk-Based Corrective Action applied at petroleum release sites (ASTM).

The HRA identified the following as chemicals of concern (COCs): TPH-D, TPH-G and BTEX. Since fuels are a combination of hundreds of different hydrocarbon components, the best way to evaluate the toxicology of fuels is to assess the toxicology of the water soluble, volatile constituents. As such, the HRA evaluated the risks of exposure to individual tested components that make up hydrocarbon fuels (in this case, BTEX). The HRA concluded that estimated carcinogenic risks due to inhalation or skin contact with volatile contaminants derived from the soil or shallow water are considered lower than the acceptable range for the COCs.

2.6.2 Evaluation of Current Conditions

In our evaluation of the HRA, PSI looked at the TPH and BTEX concentration values used in the estimation of health risks (Tables 1 and 2 of the HRA) and whether they are comparable to more recently generated soil and groundwater analytical data. PSI compared the groundwater values used in the HRA (gross maximum concentrations) with the "current" (last three quarters) groundwater analytical data. Our comparison indicates that the current highest groundwater results for TPH-D and TPH-G (16,400 and "less than 50" ppb, respectively) are less than the values used in the HRA (23,000 and 24,000 ppb,

respectively). No BTEX contaminants have been detected in MW-1 through MW-4 during the current 2002 quarterly monitoring program. The initial results for newly installed well MW-6 indicate that toluene was detected at 3.8 ppb. Aside from the one detection of toluene, the current groundwater results for BTEX (all "not detected") are less than the values used in the HRA (0.8, "not detected," 1.0 and 0.8 ppb, respectively).

For estimation of exposure to contamination in soil, the HRA took available soil analytical data and calculated the 95% upper confidence level (UCL) for the concentration of each contaminant in soil. The most recent soil analyses for the site, and the only soil analyses performed since the HRA was issued, are from the hydraulic lift subsurface investigations performed by Lowney in August 1999 and March 2000. To compare these more recent soil analyses with the values used in the HRA, PSI duplicated Lowney's efforts by calculating the 95% UCL of the hydraulic lift soil analytical results. Results of "non detect" were assumed to be present at 1/2 the detection limit. These new UCLs were then compared to the UCLs used in the HRA. Our comparison, presented in Table 4, indicates that the UCLs calculated for the hydraulic lift soil analysis are less than the UCL values used in the HRA for all COCs tested.

3.0 SUMMARY AND CONCLUSIONS

1. Two diesel, one gasoline and one waste-oil UST were removed from the site in November, 1991. Overexcavation of contaminated soil from the gas and diesel UST pits was performed. An additional diesel UST was removed in June, 1992. Sampling and analysis of soil and groundwater was performed in conjunction with the removal of the tanks (Table 1).
2. A subsurface investigation was performed at the site in September 1993, which included nine soil borings. The twenty-five soil samples collected from the borings were analyzed for TPH-G, TPH-D and BTEX. The analytical results indicated the presence of each tested constituent in no more than three of the borings each. Five of the soil borings were converted into groundwater monitoring wells (MW-1 through MW-5).
3. The initial groundwater monitoring program was performed from September 1993 through the end of 1998. MW-5 was abandoned in January 1995 after one year with no contaminants detected. TPH-G and BTEX were primarily not detected in all of the wells except for MW-4. TPH-D was present in MW-1 through MW-4 with the highest levels in MW-4. Free product in MW-4 was first reported in August 1995.
4. The historic data indicates that the presence of free product (characterized as diesel fuel) in MW-4 and the elevation of TPH-D concentrations in all of the wells occurred relatively suddenly. The TPH-D concentrations peaked quickly and have been trailing off since that time. It is our opinion that this observed pattern is consistent with a short-duration or single-event release of diesel fuel, caused by a mistake, spill, accident or other one-time event centered around or within MW-4.
5. The soil and groundwater investigation of leaking hydraulic lifts prepared by Lowney Associates concluded that the impact from the leaking hydraulic lifts is limited to the area immediately surrounding the lifts and that there is no significant migration of contaminants. Based on our review of the Lowney report, PSI agrees with their conclusion.
6. Based on PSI's review of the Lowney investigation reports and on the current and expected future use of the site as a vehicle maintenance facility for the USPS mail processing center, it is our opinion that additional remedial efforts to address residual concentrations of hydraulic fluid in soil and groundwater should not be required.
7. Efforts to remove free product diesel fuel from MW-4 appear to have been successful, as the recently changed socks appear to be relatively free of product and there is no longer a measurable height of free product within the well casing. As of October 25, 2002, PSI has discontinued the use of absorbent socks in MW-4.

The presence of free product (or absence) will be evaluated again at the fourth quarter 2002 sampling event in order to verify that there is not an on-going release.

8. Based on the volume of free product removed from MW-4 and the assumption of a one-time event, it appears that the amount of the discharge to groundwater was on the order of between 1 and 2 gallons.
9. The general absence of TPH-G and BTEX constituents in the groundwater samples collected from the site indicates that, in the areas tested, there has been no significant release of gasoline fuel. This conclusion is further supported by the relatively low levels of MTBE detected.
10. Based on our review of the Tier II HRA, including a comparison of both total concentrations of contaminants and on calculated UCL values, it is our opinion that the values used in the Tier II HRA for calculation of health risk are more conservative than the more recent concentrations warrant. Therefore, it is PSI's opinion that the conclusions of the HRA, with respect to estimated health risk, are not only valid, but are conservative for current site conditions.

4.0 RECOMMENDATIONS

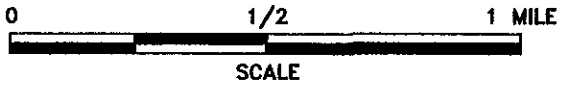
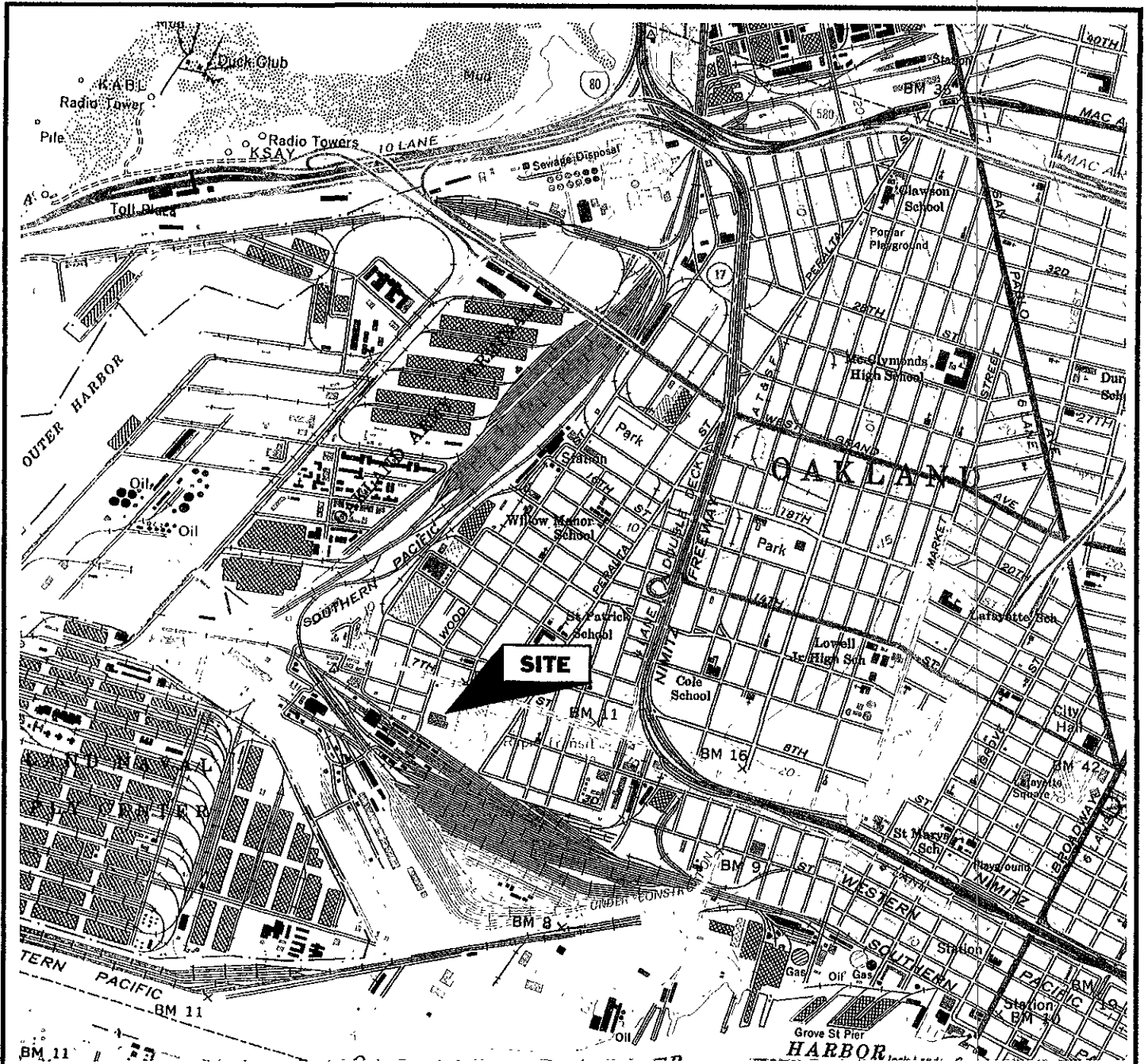
This report is intended to address all of the concerns raised in the referenced letters from the ACHCSA and is a formal request for site closure. Fourth Quarter 2002 groundwater sampling has been performed, and the monitoring report will be submitted under separate cover when analysis has been completed. Pending the favorable outcome of the Fourth Quarter 2002 groundwater sampling analysis results, PSI recommends that closure proceedings be initiated for this project site. As such, we request a response from the ACHCSA representative, Mr. Barney Chan, to confirm that the concerns of the county have been adequately addressed and that he concurs with our assessment of the current conditions and opinion regarding closure of the subject site.

5.0 REFERENCES

1. The United States Department of Agriculture (USDA), March 1981, "Soil Survey of Alameda County, California, Western Part," Scale 1:24,000.
2. California Division of Mines and Geology (CDMG), 1991, "Geologic Map of the San Francisco-San Jose Quadrangle," Scale 1:250,000.
3. Geo/Resource Consultants, Inc., April 23, 1992, "Construction Observation of UST Activities, USPS, Oakland, California."
4. Geo/Resource Consultants, Inc., September 17, 1992, "Supplemental Observational Letter - Underground Storage Tank (UST) Program- U.S. Postal Service Vehicle Maintenance Facility, Oakland, California."
5. Lowney Associates, October 8, 1999(a), "Soil and Ground Water Quality Evaluation, USPS Vehicle Maintenance Facilities, Oakland and Richmond, California," Project No. 864-40C.
6. Lowney Associates, October 11, 1999(b), "Tier II Human Health Risk Appraisal, Oakland Vehicle Maintenance Facility, Oakland, California," Project No. 864-40B.
7. Lowney Associates, March 20, 2000, "Soil and Ground Water Quality Evaluation, Oakland Vehicle Maintenance Facility, Oakland, California," Project No. 864-40D.
8. Alameda County Health Care Services Agency, Environmental Health Services, Environmental Protection, April 9, 2001, "Re: Environmental Investigation at USPS Oakland Vehicle Maintenance Facility, 1675 7th St., Oakland, CA 94607."
9. Professional Service Industries, April 26, 2002, "First Quarter 2002 Groundwater Monitoring Report, USPS GMF/VMF, 1675 7th Street, Oakland, California," Project No. 575-2G007.
10. Alameda County Health Care Services Agency, Environmental Health Services, Environmental Protection, May 13, 2002, "Fuel Leak Case RO0000016, 1675 7th St., Oakland, CA 94607."
11. Professional Service Industries, July 17, 2002, "Workplan: Site Investigation & Free-Product Removal, USPS GMF/VMF, 1675 7th Street, Oakland, California," Project No. 575-2G007.
12. Alameda County Health Care Services Agency, Environmental Health Services, Environmental Protection, July 19, 2002, "Fuel Leak Case RO0000016, 1675 7th St., Oakland, CA 94607."

13. Professional Service Industries, July 24, 2002, "Second Quarter 2002 Groundwater Monitoring Report, USPS GMF/VMF, 1675 7th Street, Oakland, California," Project No. 575-2G007.
14. Professional Service Industries, August 19, 2002, "Addendum to Workplan, USPS Vehicle Maintenance Facility, 1675 7th Street, Oakland, California."
15. Professional Service Industries, October 30, 2002, "Third Quarter 2002 Groundwater Monitoring Report, USPS GMF/VMF, 1675 7th Street, Oakland, California," Project No. 575-2G007.

FIGURES



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

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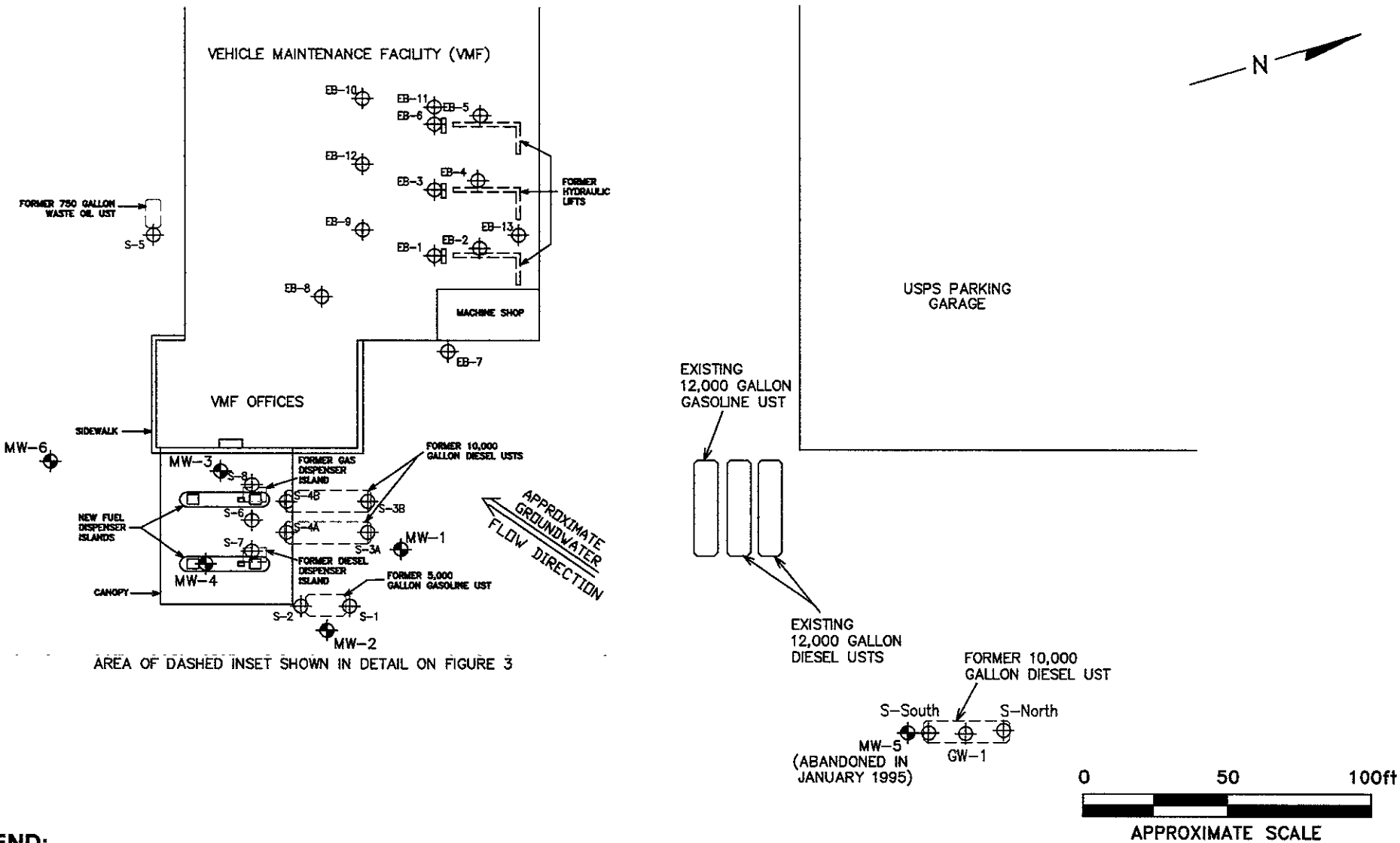
4703 Tidewater Avenue, Suite B
 Oakland, California 94601
 (510) 434-9200

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

Drawn By: B.W.B. **Date:** 7/02 **File No.:** 2C007-01 **Figure No.:** 1

Title: SITE LOCATION MAP

Approved By: F.P. **Project No.:** 575-2G007



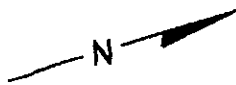
AREA OF DASHED INSET SHOWN IN DETAIL ON FIGURE 3

LEGEND:

- MW-6 - APPROXIMATE MONITORING WELL LOCATION
- S-8 - APPROXIMATE SAMPLE LOCATION (1991)
(ANALYTICAL RESULTS SHOWN ON TABLE 1)
- EB-13 - APPROXIMATE BORING LOCATION (1999-2000)
(ANALYTICAL RESULTS SHOWN ON TABLE 3)

- NOTES:
1. BASE MAP TAKEN FROM FIELD SURVEY PERFORMED BY PSI ON JUNE 18, 2002 AND AERIAL PHOTOS.
 2. LOCATIONS OF USTS AND BORINGS TAKEN FROM REFERENCED REPORTS.

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Project Name: OAKLAND VEHICLE MAINTENANCE FACILITY 1675 7th STREET, OAKLAND, CALIFORNIA	Drawn By: B.W.B.	Date: 12/02	File No.: 2G007-10	Figure No.: 2
Title: SITE PLAN AND SAMPLE POINT LOCATION MAP	Approved By: F.P.	Project No.: 575-2G007		



VEHICLE MAINTENANCE FACILITY (VMF)

FORMER 750 GALLON WASTE OIL UST

S-5

EB-10

EB-11
EB-6

EB-5

EB-12

EB-3
EB-4

FORMER HYDRAULIC LIFTS

EB-9

EB-1
EB-2
EB-13

EB-8

MACHINE SHOP

APPROXIMATE GROUNDWATER FLOW DIRECTION

VMF OFFICES

EB-7

SIDEWALK

MW-6

MW-3

FORMER GAS DISPENSER ISLAND

FORMER 10,000 GALLON DIESEL USTS

NEW FUEL DISPENSER ISLANDS

S-8

S-4B

S-3B

S-6

S-4A

S-3A

MW-1

S-7

FORMER DIESEL DISPENSER ISLAND

FORMER 5,000 GALLON GASOLINE UST

CANOPY




MW-4

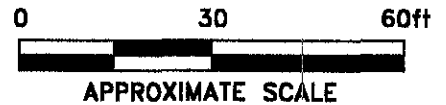
S-2

S-1

MW-2

LEGEND:

- MW-6  - APPROXIMATE MONITORING WELL LOCATION
- S-8  - APPROXIMATE SOIL SAMPLE LOCATION (1991; GEO/RESOURCE)
- EB-13  - APPROXIMATE BORING LOCATION (1999-2000; LOWNEY ASSOC.)



- NOTES:
1. BASE MAP TAKEN FROM FIELD SURVEY PERFORMED BY PSI ON JUNE 18, 2002.
 2. LOCATIONS OF WELLS SURVEYED BY MORROW SURVEYING ON 9/27/02.
 3. LOCATIONS OF USTS AND BORINGS TAKEN FROM REFERENCED REPORTS.

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(510) 434-9200

Project Name:
OAKLAND VEHICLE MAINTENANCE FACILITY
1876 7th STREET, OAKLAND, CALIFORNIA

Drawn By:
B.W.B.

Date:
10/02

File No.:2G007-09

Figure No.:3

Title:
UST AND HYDRAULIC LIFT SAMPLE
POINT LOCATION MAP

Approved By:
F.P.

Project No.:575-2G007

TABLES

TABLE 1

**HISTORIC ANALYTICAL SUMMARY
UST REMOVAL
USPS, VEHICLE MAINTENANCE FACILITY
1675 7th STREET, OAKLAND, CALIFORNIA**

Sampling Event		TPH-g	TPH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes
Location	Sample Type / Map ID						
November, 1991							
5,000-Gallon Gasoline UST	Soil / S-1	3.4	260	0.80	0.0068	0.015	0.12
	Soil / S-2	76	1200	0.59	0.23	3.5	52
10,000-Gallon Diesel UST	Soil / S-3a	59	2000	0.27	0.79	1.4	5.3
	Soil / S-3b	ND	ND	ND	ND	ND	ND
10,000-Gallon Diesel UST	Soil / S-4a	150	220	7.5	19	8.9	32
	Soil / S-4b	620	2500	37	1.6	53	130
750-Gallon Waste-Oil UST	Soil / S-5	ND	ND	0.0068	ND	ND	ND
Pump Island and Product Lines	Soil / S-6	36	1.4	11	0.36	0.82	8.1
	Soil / S-7	210	7900	ND	0.45	1.4	14
	Soil / S-8	610	2,900	3.4	60	27	170
June, 1992							
10,000-Gallon Diesel UST	Soil / S-North	--	ND	ND	ND	ND	ND
	Soil / S-South	--	ND	ND	ND	ND	ND
	Groundwater / GW-1	--	72	0.0038	ND	ND	0.012

NOTES:

Results are presented in milligrams per kilogram (mg/kg).
 TPH-g = Total Petroleum Hydrocarbons as gasoline.
 TPH-d = Total Petroleum Hydrocarbons as diesel.

Approximate sample locations are presented on Figure 2.
 ND = Not detected above respective laboratory detection limit.
 -- = Not tested.

TABLE 2
HISTORIC ANALYTICAL SUMMARY
GROUNDWATER MONITORING
USPS, VEHICLE MAINTENANCE FACILITY
1675 7th STREET, OAKLAND, CALIFORNIA

Sample I.D.	Date	TPH-G (ug/l)	TPH-D (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)
MW-1	9/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	1/26/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	3/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	6/1/94	<50	73	<0.5	<0.5	<0.5	<0.5	---
	2/22/95	<50	600	<0.5	<0.5	<0.5	<0.5	---
	6/6/95	<50	900	<0.5	<0.5	<0.5	<0.5	---
	8/16/95	<50	810	<0.5	<0.5	<0.5	<0.5	---
	11/14/95	<50	590	<0.5	<0.5	<0.5	<0.5	---
	5/16/96	---	900	---	---	---	---	---
	11/15/96	---	330	---	---	---	---	---
	3/11/02	<500	<400	<0.5	<0.5	<0.5	<1.0	<1.0
	6/18/02	<50	222	<0.5	<0.5	<0.5	<1.0	1.2
	9/26/02	<50	519	<0.5	<0.5	<0.5	<1.0	<0.5
MW-2	9/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	1/26/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	3/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	6/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	2/22/95	<50	280	<0.5	<0.5	<0.5	<0.5	---
	6/6/95	<50	570	<0.5	<0.5	<0.5	<0.5	---
	8/16/95	<50	150	<0.5	<0.5	<0.5	<0.5	---
	11/14/95	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	5/16/96	---	320	---	---	---	---	---
	11/15/96	---	<50	---	---	---	---	---
	3/11/02	<500	<400	<0.5	<0.5	<0.5	<1.0	<1.0
	6/18/02	<50	<50	<0.5	<0.5	<0.5	<1.0	0.9
	9/26/02	<50	<50	<0.5	<0.5	<0.5	<1.0	4.2
MW-3	9/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	1/26/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	3/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	6/1/94	Insufficient water - no sample collected.						
	2/22/95	50	350	<0.5	<0.5	<0.5	<0.5	---
	6/6/95	<50	380	<0.5	<0.5	<0.5	<0.5	---
	8/16/95	<50	440	<0.5	<0.5	<0.5	<0.5	---
	11/14/95	<50	200	0.8	<0.5	<0.5	<0.5	---
	5/16/96	---	1,100	---	---	---	---	---
	11/15/96	---	470	---	---	---	---	---
	3/11/02	<500	540	<0.5	<0.5	<0.5	<1.0	3.8
	6/19/02	<50	407	<0.5	<0.5	<0.5	<1.0	4.9
	9/26/02	<50	741	<0.5	<0.5	<0.5	<1.0	4.4
MW-4	9/1/93	<50	580	<0.5	<0.5	<0.5	<0.5	---
	1/26/94	<50	850	0.8	<0.5	<0.5	<0.5	---
	3/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	6/1/94	<50	260	1.7	<0.5	<0.5	<0.5	---
	2/22/95	140	1,100	1.4	<0.5	<0.5	<0.5	---
	6/6/95	24,000	23,000	<0.5	<0.5	0.5	<0.5	---
	8/16/95	2,000	3,400	1.2	<0.5	1.0	0.8	---
	11/14/95	950	7,400	<0.5	<0.5	<0.5	<0.5	---
	5/16/96	<50	2,000	<0.5	<0.5	<0.5	<1.0	---
	11/15/96	600	13,000	0.78	<0.5	0.94	<1.0	---
	3/11/02	NT	NT	<0.5	<0.5	<0.5	<1.0	8.5
	6/19/02	228	235,000	<2.5	<2.5	<2.5	<5.0	14.1
	9/26/02	<50	16,400	<0.5	<0.5	<0.5	<1.0	6.5
MW-5	9/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	1/26/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	3/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
	6/1/94	<50	<50	<0.5	<0.5	<0.5	<0.5	---
MW-5 abandoned in January 1995								
MW-6	9/26/02	<50	<50	<0.5	3.8	<0.5	<1.0	<0.5

Notes: TPH-g = Total Petroleum Hydrocarbons as gasoline
 TPH-d = Total Petroleum Hydrocarbons as diesel
 MTBE = Methyl tert-butyl ether

Results are presented in parts per billion
 < = Not detected above the laboratory detection limit, as indicated
 -- = Not tested

TABLE 3

**HISTORIC ANALYTICAL SUMMARY
HYDRAULIC LIFT REMOVAL
USPS, VEHICLE MAINTENANCE FACILITY
1675 7th STREET, OAKLAND, CALIFORNIA**

Sampling Event		TRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
Location	Sample Type / Map ID					
August, 1999						
Hydraulic Lifts	Soil / EB-1 (10.5')	22,000	ND <0.005	0.0063	0.012	0.045
	Soil / EB-2 (9.0')	35	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-3 (9.0')	48,000	0.034	0.21	0.03	0.16
	Soil / EB-4 (13.0')	90	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-5 (7.5')	ND <25	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-6 (12.0')	37	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Groundwater / EB-1-GW	61	0.00056	0.0037	0.0014	0.01
	Groundwater / EB-3-GW	38	0.0065	0.014	0.0027	0.016
	Groundwater / EB-6-GW	9.3	ND <0.0005	0.00082	0.00091	0.0036
March, 2000						
Hydraulic Lifts	Soil / EB-7 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-7 (10.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-8 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-8 (10.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-9 (9.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-9 (12.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-10 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-10 (10.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-11 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-11 (10.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-12 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-12 (9.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-13 (7.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Soil / EB-13 (9.5')	ND <50	ND <0.005	ND <0.005	ND <0.005	ND <0.005
	Groundwater / EB-7-GW	ND <0.16	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
	Groundwater / EB-8-GW	ND <0.16	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
	Groundwater / EB-9-GW	ND <0.14	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
	Groundwater / EB-10-GW	ND <0.15	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
	Groundwater / EB-11-GW	ND <0.14	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
	Groundwater / EB-12-GW	ND <0.10	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005
Groundwater / EB-13-GW	ND <0.13	ND <0.00005	ND <0.00005	ND <0.00005	ND <0.00005	

NOTES:

Results are presented in parts per million.

ND = Not detected (laboratory detection limit shown in parentheses).

-- = Not tested.

Approximate sample locations are presented on Figure 3.

TRPH = Total Recoverable Petroleum Hydrocarbons.

TABLE 4

**HEALTH RISK STATISTICAL CALCULATION / COMPARISON
USPS, VEHICLE MAINTENANCE FACILITY
1675 7th STREET, OAKLAND, CALIFORNIA**

Soil Analytical Statistics (Lowney Health Risk Appraisal - 1999)				
Constituent	Benzene	Toluene	Ethylbenzene	Total Xylenes
Upper Limit	0.023	0.042	0.23	1.4

Hydraulic Lift Soil Data (1999-2000)				
Constituent	Benzene	Toluene	Ethylbenzene	Total Xylenes
Soil / EB-1 (10.5')	0.0025	0.0063	0.012	0.045
Soil / EB-2 (9.0')	0.0025	0.0025	0.0025	0.0025
Soil / EB-3 (9.0')	0.034	0.21	0.03	0.16
Soil / EB-4 (13.0')	0.0025	0.0025	0.0025	0.0025
Soil / EB-5 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-6 (12.0')	0.0025	0.0025	0.0025	0.0025
Soil / EB-7 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-7 (10.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-8 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-8 (10.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-9 (9.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-9 (12.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-10 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-10 (10.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-11 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-11 (10.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-12 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-12 (9.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-13 (7.5')	0.0025	0.0025	0.0025	0.0025
Soil / EB-13 (9.5')	0.0025	0.0025	0.0025	0.0025

Hydraulic Lift Soil Analytical Statistics (PSI - 2002)				
Constituent	Benzene	Toluene	Ethylbenzene	Total Xylenes
Standard Deviation	0.007043614	0.046361455	0.006399219	0.035991593
Confidence Interval	0.003086939	0.0203184	0.002804526	0.015773698
Mean	0.0041	0.0131	0.0044	0.01250
Upper Limit	0.007	0.033	0.007	0.03

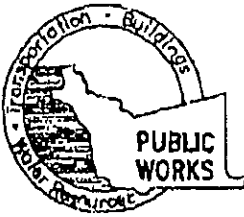
Notes: All data are presented in parts per million (ppm).

The Confidence Interval is based on 95% confidence.

All results of "ND" were assumed to be present at one-half the detection level.

APPENDIX A

MW-6 INSTALLATION RECORDS



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 **6633 - SAMES 700**
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT
UNITED STATES POSTAL SERVICE (USPS)
1675 7th STREET
OAKLAND, CA 94615

PERMIT NUMBER W02-0848
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

CLIENT
Name USPS
Address 1675 7th STREET Phone _____
City OAKLAND, CA Zip 94615

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

APPLICANT
Name PSI
Address 5709 FLORENCE AVE. STE B Fax 510-434-7676
City OAKLAND, CA Phone 510-434-9200
Zip 94601

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input checked="" type="checkbox"/>	Well Destruction	<input type="checkbox"/>

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>	DIRECT PUSH	

E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

DRILLER'S NAME V+W DRILLING

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

DRILLER'S LICENSE NO. 107 720904

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

WELL PROJECTS

Drill Hole Diameter	<u>2</u> in.	Maximum	
Casing Diameter	<u>1</u> in.	Depth	<u>~20</u> ft.
Surface Seal Depth	<u>~2</u> ft.	Owner's Well Number	

Submit site map within 5 days.

GEOTECHNICAL PROJECTS

Number of Borings		Maximum	
Hole Diameter	_____ in.	Depth	_____ ft.

ESTIMATED STARTING DATE 8/29/02
ESTIMATED COMPLETION DATE 8/29/02

APPROVED _____

DATE 8/20/02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE CHRIS MERRITT DATE 8/20/02

PLEASE PRINT NAME CHRIS MERRITT Rcv.5-13-00

** TOTAL PAGE.02 **

SOIL BORING LOG

DRILLER: RYAN KUBIE

BORING NO: B-1

SHEET 1 OF

PROJECT NAME: USPS - OAKLAND

PROJECT NUMBER: 575-26007

DATE: Aug 29, 2002

DRILLING COMPANY: V+W DRILLING

DRILLING METHOD: Geoprobe Push-Drill

BORING DIAMETER:

DEPTH:

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1					4" ASPHALT OVER 6" AGGREGATE			
2								
3								
4								
5	2	X			SILTY SAND, MED BROWN, MOIST	0.8	S	NO ODR
6								
7								
8								
9					AS ABOVE	0.3		NO ODR
10		X						
11								
12								
13					SAND, MED BROWN, W/RT MOIST, FINE SAND	0.0	S	NO ODR
14		X						
15								
16								
17					AS ABOVE; WET	0.9		NO ODR
18								
19								
20								

Reviewed By: *EB @ 20.5'*

LOGGED BY: B. BURFIELD

MONITORING WELL RECORD

WELL/BORING NO: **MW-6**

DATE: **9/12/02**

PROJECT NAME: **USPS - OAKLAND VMF**

PROJECT NO: **575-26007**

LOCATION PLAN:

MW 6
①



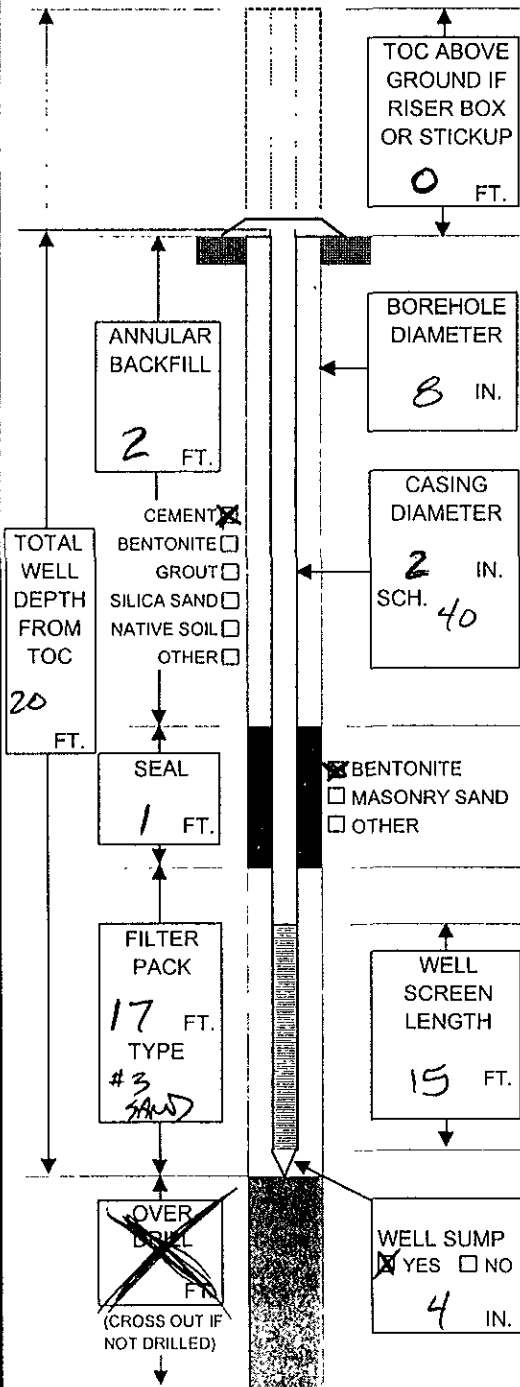
SEC: TWN: RGE: LAT: LONG:

DRILLERS: **REAN KUBLE AND TONY**

PERMIT INFORMATION: **ALAMEDA Co. PUB. WORKS AGENCY W02-0848**

WELL TYPE: SHALLOW SINGLE CASED MONITORING
 PERMANENT INTERMEDIATE DOUBLE CASED RECOVERY
 TEMPORARY DEEP OTHER OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON: STEAM CLEAN HIGH PRESSURE WASH
 SOAP WASH OTHER

CASING TYPE: PVC STAINLESS TEFLON OTHER
 JOINTS: THREADED WELDED COUPLED
 SCREWED OTHER

PIT CASING: YES NO DESCRIBE

WELL SCREEN: PVC STAINLESS TEFLON OTHER
 DIAMETER: 2" 4" 6" OTHER IN
 SLOT: 0.010 0.020 OTHER IN

DRILLING METHOD: SOLID STEM HOLLOW STEM MUD ROTARY
 AIR ROTARY DIRECT PUSH HAND AUGER
 OTHER

BIT SIZE: 2" 4" 6" 8" 12" OTHER IN

DRILLING MUD: NONE WATER BENTONITE
 OTHER

CENTRALIZER: YES NO

COMPLETION: FLUSH MOUNT STICKUP RISER BOX
 LOCK TYPE: DOLPHIN MASTER KEY NO.
 OTHER

PAD: 2'X2' 4'X4' OTHER **12" - DIAMETER**

CUTTINGS: DRUMMED NUMBER OF DRUMS **2**
 SPREAD OTHER

DEVELOPMENT METHOD: NONE BAILING PUMPING AIR LIFT
 SURGE & BLOCK OTHER

TIME: 10 MIN 20 MIN OTHER MIN
 AMOUNT: 5 GAL 10 GAL OTHER GAL

WATER BEFORE: SILTY TURBID OPAQUE CLEAR
 WATER AFTER: SILTY TURBID OPAQUE CLEAR

EVIDENT ODOR: YES NO TYPE

DEVELOPMENT WATER: DRUMMED NUMBER OF DRUMS
 SPREAD TREATED POTW OTHER

WATER LEVEL: INITIAL FT BTOC BLS

DATE: _____ FT BELOW TOC
 DATE: _____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

11" CUT OFF TOP OF 5' BURIED CASING



PREPARED BY:

APPENDIX B

FREE PRODUCT FIELD DATA

FREE PRODUCT MEASUREMENT FIELD DATA

WELL NUMBER: MW-4			PROJECT NAME: USPS OAKLAND VMF			PROJECT NO: 575-2G007	
PRODUCT DETECTION INSTRUMENT:					SERIAL NO:		
DATE	TIME	PERSON	DEPTH TO PRODUCT BELOW TOC	DEPTH TO WATER BELOW TOC	PRODUCT THICKNESS	SOCK STATUS	COMMENTS
9/19/02	10:15	CM	NA	9.73'	—	SLIGHT ACCUMULATION SLIGHTLY ABOVE & BELOW H ₂ O LINE	(3RD SOCK REMOVED - 4TH INSTALLED)
8/29/02	11:00	CM	9.33 9.33	9.71'	0.30" (4.6")	1ST SOCK INSTALLED	{ 10 GAL PERIOD PRIOR TO SOCK INSTALL PROD. THICKNESS = 0.1' AFTER PERIOD
9/9/02	15:30	BB	N/A	9.66'	N/A	2' DIESEL SPILL - 1ST SOCK REMOVED, 2ND SOCK INSTALLED	
9/12/02	9:30	BB	N/A	9.69'	N/A	1' DIESEL SPILL - LIGHT	2ND SOCK REMOVED, 3RD SOCK INSTALLED
10/01/02	10:32	CM	N/A	9.98 9.98'	NA	NO CHANGE IN SOCK LIGHT STAIN	LIGHT SHEEN ON WATER
10/27/02	11:35	CM	N/A	10.32'	NA	NO IN SOCK, REVERSED V. LIGHT STAIN	LT SHEEN, A FEW VISIBLE GLOBES LOOKING DOWN BORE.

REVIEWED BY: CHRIS MERRITT