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8:54 am, May 29, 2008

Alameda County
Environmental Health

May 27, 2008

Mr. Paresh Khatri
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

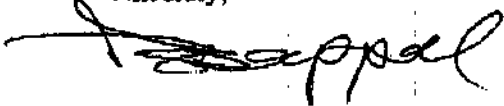
RE: Additional Investigation Workplan
Alaska Gas
6211 San Pablo Avenue
Oakland, California

Dear Mr. Khatri:

Attached for your review and comment is the May 27, 2008 *Additional Investigation Workplan*, prepared by HerSchy Environmental, Inc upon my behalf, for the above-referenced site.

As the legally authorized representative of the above-referenced project, I have reviewed the attached report and declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,



Mr. Pritpaul Sappal



erSchy Environmental, Inc.

May 27, 2008
Project A51-01

Mr. Paresh Khatri
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

Re: **Additional Investigation Workplan**
Alaska Gasoline Company
6211 San Pablo Avenue
Oakland, California
Case #RO0000127

Dear Mr. Khatri:

HerSchy Environmental, Inc. (HerSchy), on behalf of Mr. Pritpaul Sappal of the Alaska Gasoline Company, has prepared this *Investigation Workplan* for the site referenced above. The site is located at 6211 San Pablo Avenue, which is on the northwest corner of San Pablo Avenue and 62nd Street in Oakland, Alameda County, California (Figure 1). This document was prepared in response to Alameda County Environmental Health Services (ACEHS) correspondence dated March 28, 2008. In the March 2008 correspondence, ACEHS staff requested a Site Conceptual Model (SCM) along with a workplan to address identified data gaps listed within the SCM. Regulatory correspondence is included in Appendix A.

SITE LOCATION & DESCRIPTION

The site is located at 6211 San Pablo Avenue in Oakland, Alameda County, California (Figure 1). On February 12, 2004, three 10,000-gallon underground storage tanks (USTs) were removed under the supervision of Mr. Hernan Gomez as a representative of the City of Oakland. Currently, there are six, dual-sided, multi-product fuel dispensers and associated product piping connected to USTs and utilized for retail fuel sales (Figure 2).

GEOLOGY & HYDROGEOLOGY

The lithology encountered during various subsurface investigation events consists of primarily silty clay (CL) to maximum explored depth of 30 feet below grade (extraction well EX-1). Lesser intervals of silt, clayey silt, very fine- to fine-grained sand (ML), silty sand (SM), sand (SW), and clayey gravel (GC) are also present in the explored subsurface areas at this site. The discontinuous coarser deposits may



represent historic channel cut and fill deposits associated with development of the San Francisco Bay region.

Historically, depth to groundwater has fluctuated from 3.96 feet to 9.33 fbg, which correlates to groundwater elevations ranging from 26.16 feet to 33.34 feet above msl. Groundwater flow has generally been to the southwest towards the San Francisco Bay.

IDENTIFIED DATA GAPS

During preparation of a Site Conceptual Model (SCM) by HerSchy staff, several data gaps were identified and are re-iterated here below.

Lateral Plume Extents

Lateral plume extents appear defined to the north-northwest, north, north-northeast, northeast, and east of the primary source area. Lateral plume extents are undefined offsite and down gradient of source area (from northwest to east-southeast of primary source area).

Vertical Plume Extents

Groundwater monitoring has indicated that shallow groundwater in the vicinity of the plume has been impacted. Vertical plume extents within the vicinity of the primary and secondary source areas have not been defined below historical groundwater lows at this time.

Volatilization

A soil vapor extraction (SVE) system has been operated onsite nearly continuously from August 31, 2006 to November 19, 2007. Volatilization pathways have not been fully assessed at this time.

Generally speaking, addressing site specific data gaps can aid in gaining a more cohesive and comprehensive understanding of site characteristics.

PROPOSED SCOPE OF WORK

Previous Workplans

Installation of two down gradient permanent monitoring points was originally proposed in HerSchy's *Results of Well Installation, Quarterly Groundwater Monitoring, and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California, June 17, 2002. (Appendix B)*. The monitoring points were proposed in order to assess off-site and down-gradient soil and groundwater conditions and gain a better understanding of lateral plume extents. The workplan also proposed a soil vapor extraction system as an interim remedial action plan. The workplan was approved by ACEHS staff in correspondence dated



August 13, 2003 (Appendix C). Since that time, a soil vapor extraction system has been installed and was operational from August 31, 2006 through November 19, 2007. Due to continued issues surrounding the insurance requirements of the City of Oakland for permanent wells in the city right of way, the proposed monitoring points have yet to be installed. The ongoing efforts have been documented, to some extent, in reports of various types submitted to ACEHS. As requested, a correspondence log detailing various conversations, letters, etc. is included as Appendix G. It is important to note that while a log was created of previous documented correspondences concerning this issue, it does not include undocumented correspondences. HerSchy has spent numerous man-hours, many undocumented, investigating different resolutions to this residual problem.

As a means to further investigate lateral plume extents in the midst of continual insurance issues, HerSchy submitted a workplan entitled *Direct-Push Soil and Groundwater Assessment, Alaska Gasoline Company, Oakland, California, Case #RO 0000127* dated November 16, 2006 (Appendix D). The original workplan included five direct-push soil borings down-gradient of the residual plume. The workplan was approved by ACEHS staff in correspondence dated November 21, 2006, with two additional soil borings included (Appendix E). One of the borings proposed by ACEHS staff was located within the structure of the adjacent apartment building and as such, was omitted based on inaccessibility (physical limitations restricting work) Due to issues in obtaining access agreements for proposed borings on private property, HerSchy proceeded with three of the original 7 proposed soil borings. After evaluating the data from the three completed borings and re-evaluating the original locations a *Site Update* letter was submitted to ACEHS staff on August 29, 2007 (Appendix F). In this letter, HerSchy proposed modifications to the approved workplan which included moving approved boring locations, adding more boring locations, and changes in drilling method (i.e. – hand augering vs. direct push) if driller availability became an issue. The modification requests were made for several reasons including potentially circumventing difficult access agreements, extending the lateral investigation extents, and avoiding potential drilling delays and costs. A site map depicting completed, proposed, and modified boring locations is included as Figure 3. These modifications have not been formally approved at this time.

Additional Soil Assessment - Vertical Plume Extents

Four direct push soil borings (DDP-1 through DDP-4) will be drilled at the site for assessment of the vertical plume component. Borings will be advanced to approximately 40 feet, or until contamination is not observed through field methods (Figure 4). Drilling will be performed using direct push technology which will allow for continuous soil sampling. Soil is retrieved from the borings in 2-inch plastic sleeves which are driven, inside the direct push drive rods, through undisturbed soil in 4-foot sections. Each 4-foot section is removed after being completely advanced, with new sleeves advanced back-to-back until the desired depth is reached or drilling “refusal” is encountered.



Analytical samples will be collected at 5 foot intervals and at the capillary fringe until the full desired depth is reached. Each sample selected for laboratory analysis will be cut from the full 4-foot "core" in at least 6-inch sections and capped with Teflon tape and plastic end caps. These samples will then be placed in a cooler chest with ice or frozen gel packs ("blue ice") and maintained at or below four degrees Celsius until delivered to the laboratory. All samples will be transported under proper chain-of-custody documentation until delivered to a certified laboratory. Soil samples and drill cuttings will be described in accordance with the Unified Soil Classification System by qualified personnel.

Soil samples will be field screened using a portable photo-ionization detector (PID). A portion of the sample retrieved from each sampling interval will be placed in a plastic zip-lock bag, sealed in the bag for a minimum of ten minutes at 70 degrees Fahrenheit or more, and the PID probe inserted into the bag to evaluate concentrations of volatile organic compounds (VOCs) in the soil.

Any cuttings generated during the drilling process will be stored in UN approved 55 gallon drums for removal by a licensed waste hauler.

Laboratory Analysis

Soil samples will be analyzed for gasoline-range total petroleum hydrocarbons (TPH-g) by EPA Method 8015, and benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), the degradation product tertiary butyl alcohol (TBA), and the additives 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB) by EPA Method 8260b.

Soil Vapor Monitoring

Three soil gas sampling wells (SG-1 through SG-3) will be installed at the site (Figure 4). Placement of each of the soil gas wells will be done so as to minimize the chance of encountering subsurface utilities. Each well will be installed to a total depth of three to five feet. The wells will be drilled using a two inch outside diameter AMS brand flighted auger system and a rotary drill. The casing will be constructed with 0.25 inch tubing with a Teflon™ sealing disk installed above the permeable vapor probe tip. A six inch bentonite seal will be installed on top of the Teflon™ sealing disk and the remainder of the hole will be backfilled with quick-setting contaminant-free Portland cement grout. An eight inch or smaller well box will be sealed in place with concrete. The wells shall remain in place for further testing.

Soil Gas Sampling and Well Integrity Test

The methods used for the integrity test are from the DTSC Cal EPA Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion document dated February 7, 2005. The installed wells will be



allowed a minimum of 30 minutes to equilibrate prior to testing the integrity of the piping connections. A tracer gas that is included in the EPA TO-15 analysis will be used. A paper towel will be soaked in the tracer substance and placed in a dish. The dish, sampling container, any tubing, and the top of the well will be covered in plastic sheeting. Air flow shall not exceed 200 cc/min during sampling. The integrity test and sampling will not take place within two days of rainfall.

Samples will be collected in gas-tight, opaque/dark containers so that light-sensitive or halogenated VOCs will not degrade. Summa canisters will be used, and a flow regulator will be placed between the probe and the canister to ensure that the canister is filled at the appropriate flow rate. Flow rates will not exceed 200 ml/min. Samples will be shipped under chain of custody documentation to a California certified laboratory for the analysis of TPHg by EPA Method TO-3, BTEX, and MTBE by EPA Method TO-15.

Report Preparation

A report will be prepared describing methods used, field activities, and the results of the investigation. The report will contain maps indicating pertinent features and well locations, boring logs, well construction details, and certified analytical results. The report will be certified by a California Professional Geologist.



HerSchy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

CLOSING

HerSchy believes the approval of our August 29, 2007 workplan and the additional work proposed above will significantly reduce the data gap at this site, and allow for narrowly focused investigations, if necessary, and ultimately a Corrective Action Plan. HerSchy also requests assistance from your office in obtaining off-site property owner permissions, as well as negotiating with the City of Oakland for more reasonable insurance requirements for well installation.

We appreciate the opportunity to work with you on this matter. Please contact Reijo Ratilainen (559) 760-0037 or Scott Jackson (559) 641-7320 with any questions or for additional information.

Sincerely,

HerSchy Environmental, Inc.

Reijo Ratilainen
Project Geologist

Scott Jackson, P.G. #7948
Senior Project Geologist



Figures

- 1 - Vicinity Map
- 2 - Site Plan
- 3 - Direct Push Boring Locations
- 4 - Proposed Soil Gas Monitoring Point and Deep Direct Push Locations

Appendices

- A - Regulatory Correspondence – March 28, 2008
- B - *Results of Well Installation, Quarterly Groundwater Monitoring, and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California* - June 17, 2002
- C - Regulatory Correspondence – August 13, 2003
- D - *Direct-Push Soil and Groundwater Assessment, Alaska Gasoline Company, Oakland, California, Case #RO 0000127* - November 16, 2006
- E - Regulatory Correspondence – November 21, 2006
- F - *Site Update, August 29, 2007*
- G - Correspondence Log

cc: Mr. Pritpaul Sappal
Mr. Hernan Gomez, Oakland Fire Services Agency
Ms. Alyce Sandbach, Deputy District Attorney

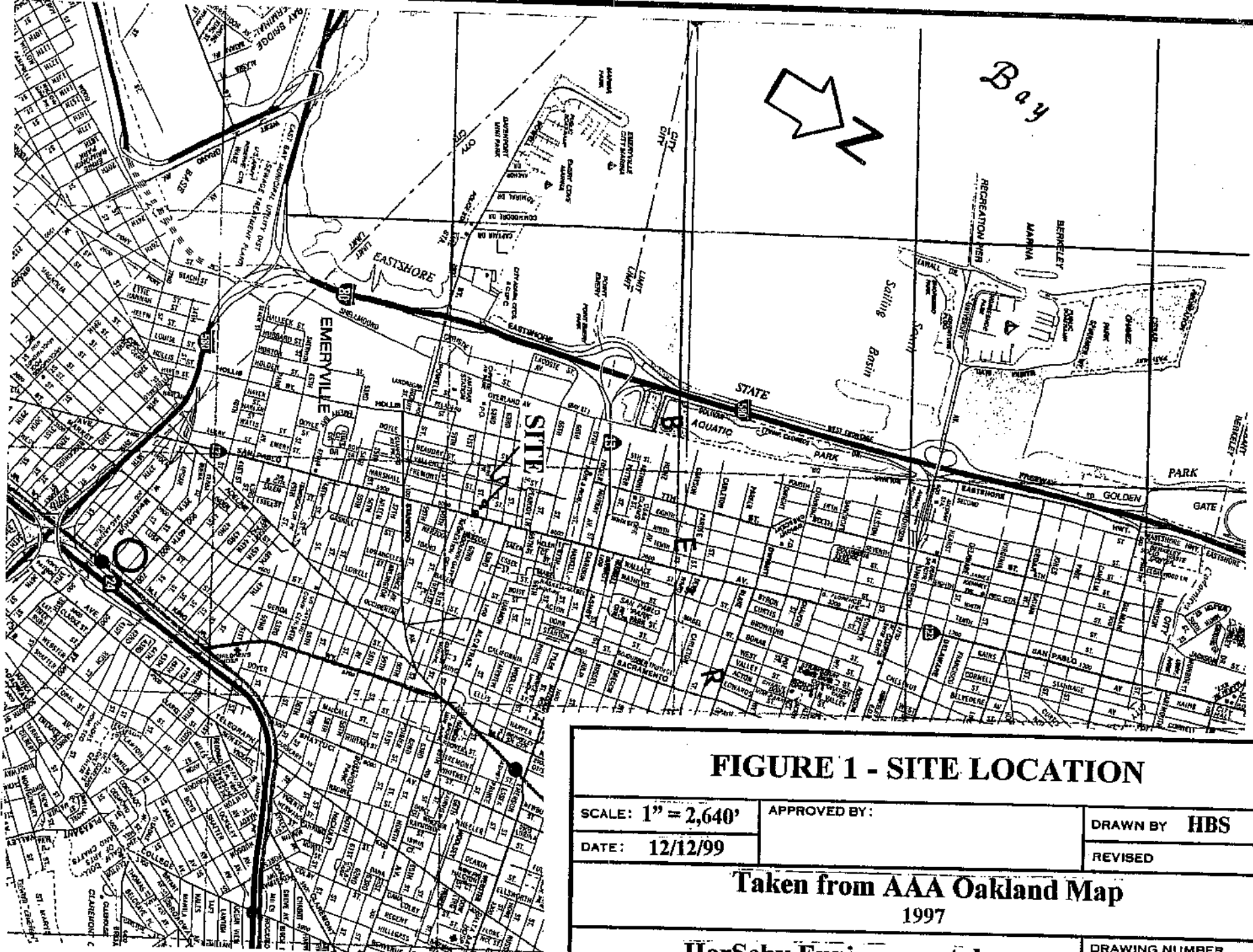


FIGURE 1 - SITE LOCATION

SCALE: 1" = 2,640'	APPROVED BY:	DRAWN BY HBS
DATE: 12/12/99		REVISED
Taken from AAA Oakland Map 1997		
HerSchy Environmental		DRAWING NUMBER

Residential

Baker Tanks

MW-6

MW-1R

MW-1

MW-2

MW-3

Restroom

Store

Canopy

MW-4

EX-1

MW-5

San Pablo

Residential

62nd Street



HerSchy Environmental, Inc.
Environmental Consulting and Remediation

P. O. Box 229
Bass Lake, California 93604-0229
Tel. (559) 641-7320, Fax (559) 641-7340

SITE PLAN

ALASKA GASOLINE COMPANY

6211 San Pablo Avenue, Oakland, California

DATE:

FILE NO.:

A51-01.02

DRAWN BY:

JSO

FIGURE

2

COMPLETED DIRECT-PUSH BORING LOCATIONS WITH REMAINING BORING LOCATIONS

SCALE: 1" = 50'	APPROVED BY:	DRAWN BY:
DATE: April 14, 2006		REVISED: RER

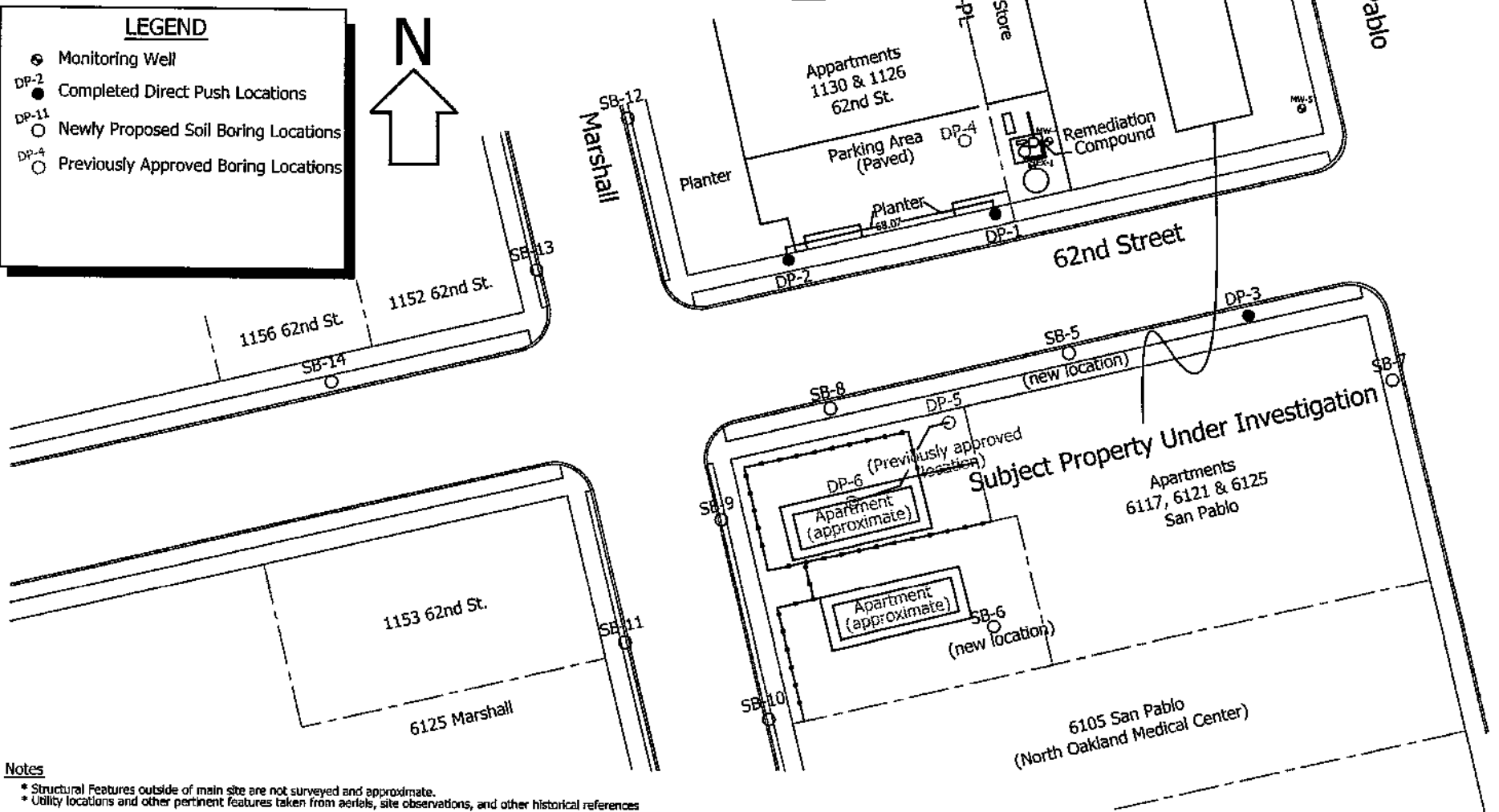
ALASKA GAS
Oakland, California

HerSchy Environmental, Inc.

DRAWING NUMBER:
FIGURE 3

LEGEND

- ⊙ Monitoring Well
- DP-2 Completed Direct Push Locations
- DP-11 Newly Proposed Soil Boring Locations
- DP-4 Previously Approved Boring Locations

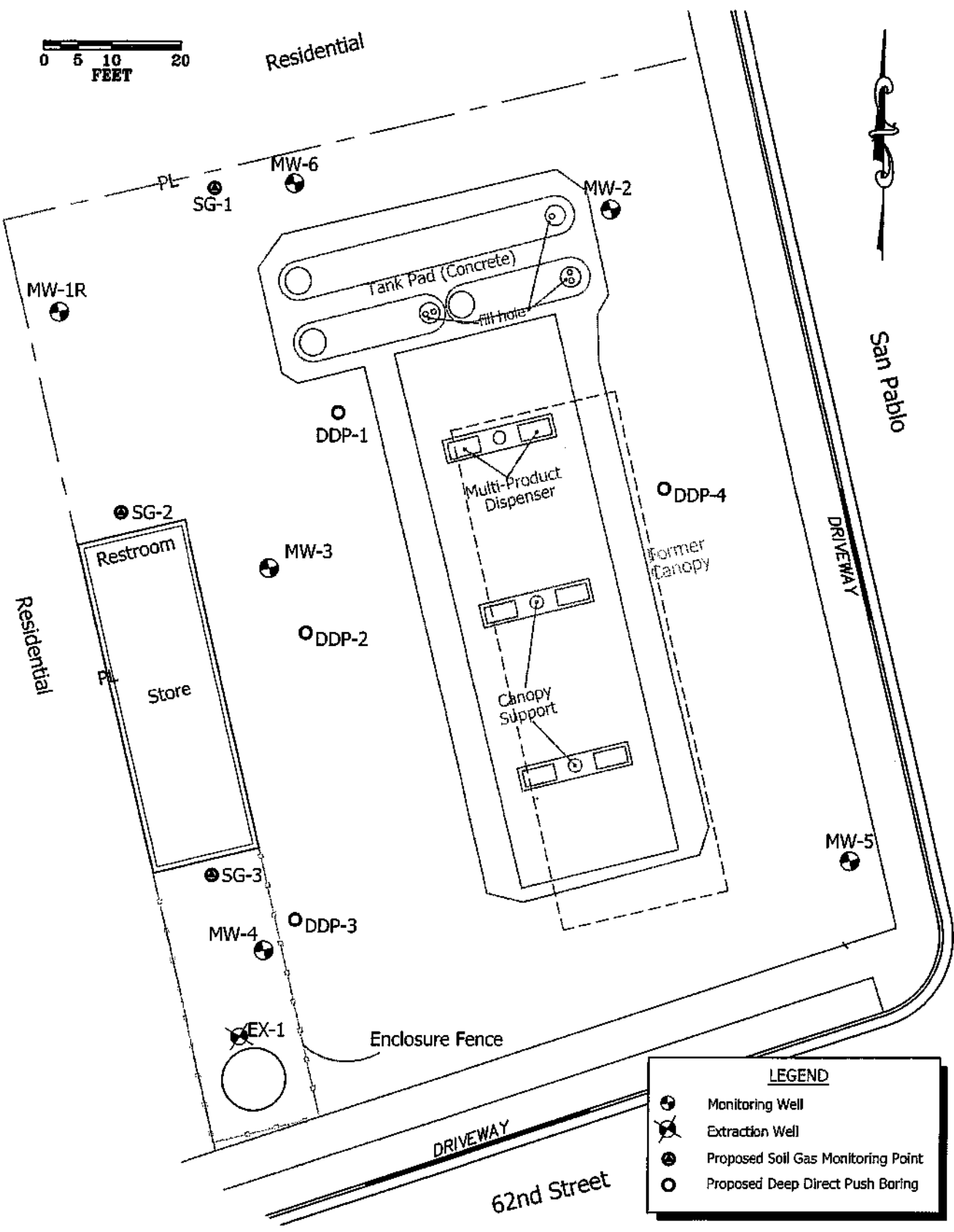


Notes

- * Structural Features outside of main site are not surveyed and approximate.
- * Utility locations and other pertinent features taken from aerials, site observations, and other historical references



Residential



LEGEND	
	Monitoring Well
	Extraction Well
	Proposed Soil Gas Monitoring Point
	Proposed Deep Direct Push Boring

HerSchy Environmental, Inc.
Environmental Consulting and Remediation

P. O. Box 229
Bass Lake, California 93604-0229
Tel. (559) 641-7320, Fax (559) 641-7340

PROPOSED SOIL GAS MONITORING POINTS &
DEEP DIRECT PUSH BORING LOCATIONS
ALASKA GASOLINE COMPANY
6211 San Pablo Avenue, Oakland, California

DATE: May 20, 2008
FILE NO.: A51-01
DRAWN BY: RER

FIGURE
4



Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX A
Regulatory Correspondence – March 28, 2008

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES

ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-8700
FAX (510) 337-9335

March 28, 2008

Mr. Pritpaul Sappal
2718 Washburn Court
Vallejo, CA 94591

Subject: Site Conceptual Model and Site Characterization for Fuel Leak Case RO0000127,
GeoTracker Global ID T0600101804, Alaska Gas Station, 6211 San Pablo Ave.,
Oakland, CA 94608

Dear Mr. Sappal:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Results of November 2007 Quarterly Groundwater Monitoring [report]," dated January 16, 2008, which was prepared by HerSchy Environmental, Inc. (HerSchy). HerSchy is requesting to meet with Alameda County's LOP staff to discuss further remediation options. However, based on a review of the above-mentioned report and case file, it appears that the site is not adequately characterized rendering remedial option discussions premature at this time.

We request that you address the following technical comments, and send us a work plan and the technical reports requested below.

TECHNICAL COMMENTS

1. **Contaminant Source Area Characterization** – Three 10,000-gallon underground storage tanks (UST) were replaced from the site on February 12, 2004. A total of 14 confirmation soil samples and one groundwater sample were collected from the excavation. Elevated concentrations of TPH-g (5,100 mg/kg), benzene (24 mg/kg), and MIBE (50 mg/kg) were detected in the soil indicating that the vertical extent of contamination in the source is not defined and a significant secondary source exists at the site.

On March 8, 2004, nine soil samples were collected from the dispenser line trenches. Concentrations as high as 1,200 mg/kg TPH-g, 2.8 mg/kg benzene, and 67 mg/kg MtBE were detected in confirmation soil samples collected from two feet below the dispenser piping. These concentrations also indicate that vertical characterization in the source area is incomplete and that a significant secondary source exists at the site. Although a soil vapor extraction system was operated in first quarter of 2007, its remedial success in cleaning up the site appear uncertain. Please propose a scope of work to address the above-mentioned concerns and submit a work plan.

2. **Preferential Pathway Evaluation** – The purpose of the preferential pathway study is to locate potential migration pathways and conduits and determine the probability of the NAPL and/or plume encountering preferential pathways and conduits that could spread contamination. We request that you perform a preferential pathway study that details the potential migration pathways and potential conduits (wells, utilities, pipelines, etc.) for vertical and lateral migration that may be present in the vicinity of the site.

Discuss your analysis and interpretation of the results of the preferential pathway study (including the detailed well survey and utility survey requested below) and report your results in the work plan requested below. The results of your study shall contain all information required by California Code of Regulations, Title 23, Division 3, Chapter 16, §2654(b).

a. Utility Survey

An evaluation of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s) is required as part of your study. Please include maps and cross-sections illustrating the location and depth of all utility lines and trenches within and near the site and plume areas(s) as part of your study.

b. Well Survey

The preferential pathway study shall include a detailed well survey of all wells (monitoring and production wells: active, inactive, standby, decommissioned (sealed with concrete), abandoned (improperly decommissioned or lost); and dewatering, drainage, and cathodic protection wells) within a ¼ mile radius of the subject site. As part of your detailed well survey, please perform a background study of the historical land uses of the site and properties in the vicinity of the site. Use the results of your background study to determine the existence of unrecorded/unknown (abandoned) wells, which can act as contaminant migration pathways at or from your site. Please review and submit copies of historical maps, such as Sanborn maps, aerial photographs, etc., when conducting the background study.

3. **Soil and Groundwater Characterization** - The vertical and lateral extent of soil and groundwater contamination appears undefined at this time, especially off-site in the down-gradient direction. Analytical results from a groundwater sample collected from down-gradient monitoring well MW-3 on November 8, 2007 detected 34,000 µg/L TPH-g, 38,000 µg/L MtBE, and 140,000 µg/L TBA indicating that the extent of the plume is not defined. Analytical results from a groundwater sample collected from down-gradient monitoring well MW-4 on November 8, 2007 detected 64,000 µg/L TPH-g, 1,300 µg/L benzene, 1,500 µg/L MtBE, and 14,000 µg/L TBA, also demonstrates that the extent of contamination is not defined. Prior to evaluating corrective action alternatives, it is crucial to obtain and demonstrate intimate knowledge of the site lithology as well as the magnitude of the contaminant mass in the subsurface. In the "Site Update" report, completing the previously approved scope of work to define the extent of contamination by hand auger and slide hammer was proposed. It is not clear from reviewing our files whether the proposed work has been approved and/or implemented. Please provide a status summary identifying whether the scope of work has been approved and completed. If so, incorporate the analytical data in the Site Conceptual Model (SCM) requested below. If not completed, include the scope of work as identified data gaps in the SCM and submit a work plan.

4. **Site Conceptual Model** – We anticipate that characterization and remediation work, in addition to what is requested in this letter, will be necessary at and down-gradient from your site. Considerable cost savings can be realized if your consultant focuses on developing and refining a viable Site Conceptual Model (SCM) for the project. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors. The SCM is used to identify data gaps that are subsequently filled as the investigation proceeds. As the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened. Subsurface investigations continue until the SCM no longer changes as new data are collected. At this point, the SCM is said to be "validated." The validated SCM then forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

When performed properly, the process of developing, refining and ultimately validated the SCM effectively guides the scope of the entire site investigation. We have identified, based on our review of existing data, some initial key data gaps in this letter and have described several tasks that we believe will provide important new data to refine the SCM. We request that your consultant incorporate the results of the new work requested in this letter into their SCM, identify new and/or remaining data gaps, and propose supplemental tasks for future investigations. There may need to be additional phases of investigations, each building on the results of prior work, to validate the SCM. Characterizing the site in this manner will focus the scope of work to address the identified data gaps, which improves the efficiency of the work, and limit its overall costs.

Both industry and the regulatory community endorse the SCM approach. Technical guidance for developing SCMs is presented in Strategies for Characterizing Subsurface Releases of Gasoline Containing MTBE, American Petroleum Institute Publication No. 4699 dated February 2000; "Expedited Site Assessment Tools for Underground Storage Tank Sites: A Guide for Regulators" (EPA 510-B-97-001), prepared by the U.S. Environmental Protection Agency (EPA), dated March 1997; and "Guidelines for Investigation and Cleanup of MTBE and Other Ether-Based Oxygenates, Appendix C," prepared the State Water Resources Control Board, dated March 27, 2000.

The SCM for this project is to incorporate, but not limited to, the following:

- a. A concise narrative discussion of the regional geologic and hydrogeologic setting. Include a list of technical references you reviewed, and copies (photocopies are sufficient) of regional geologic maps, groundwater contours, cross-sections, etc.
- b. A concise discussion of the on-site and off-site geology, hydrogeology, release history, source zone, plume development and migration, attenuation mechanisms, preferential pathways, and potential threat to down-gradient and above-ground receptors (e.g. contaminant fate and transport). Please include the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e. vapor pathway) in the analysis. Maximize the use of large-scaled graphics (e.g. maps, cross-sections, contour maps, etc.) and conceptual diagrams to illustrate key points. Include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s).

- c. Identification and listing of specific data gaps that require further investigation during subsequent phases of work.
- d. Proposed activities to investigation and fill data gaps identified above.
- e. The SCM shall include an analysis of the hydraulic flow system at down-gradient from the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on the groundwater contour maps and updated in all future reports submitted for your site. Include an analysis of vertical hydraulic gradients. Please note that these likely change due to seasonal precipitation and groundwater pumping.
- f. Temporal changes in the plume location and concentrations are also a key element of the SCM. In addition to providing a measure of the magnitude of the problem, these data are often useful to confirm details of the flow system inferred from the hydraulic head measurements. Please include plots of the contaminant plumes on your maps, cross-sections, and diagrams.
- g. Please include summary tables of chemical concentrations in different media (i.e. soil, groundwater, and soil vapor), including well logs, well completion details, boring logs, etc.
- h. Many other contaminant release sites may exist in the vicinity of your site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for your SCM. Include a summary of work and technical findings from nearby release sites.

At this juncture, prepare a site conceptual model (SCM) as described above, including developing and/or identifying site cleanup goals, and include the results of the SCM in the decision-making process. If data gaps (i.e. potential contaminant volatilization to indoor air or contaminant migration along preferential pathways, etc.) are identified in the SCM, please include a work plan to address those data gaps.

5. **Interim Remedial Action** - Based on a review of the case file, it appears that "free product" has been consistently detected at the site since September 2003. To abate "free product" absorbent socks have been installed at the site. However, as an interim measure, a more aggressive "free product" removal approach appears warranted. To that end, please prepare a "free product" removal work plan. Please include this work plan with the SCM requested below.

Once site characterization is completed, a Feasibility Study/Corrective Action Plan (FS/CAP) will be requested. The FS/CAP should be prepared in accordance with California Code of Regulations, Title 23, Division 3, Chapter 16, §2725(f), which evaluates cost-effective remedial approaches having likelihood of attaining site cleanup objectives.

TECHNICAL REPORT REQUEST

Please submit the Site Conceptual Model, Work Plan, and technical reports to Alameda County Environmental Health (Attention: Paresh Khatri), according to the following schedule:

- **May 27, 2008** – Site Conceptual Model and Preferential Pathway Study, Data Gap Work Plan, and Interim Remedial Action Work Plan
- **July 30, 2008** – Quarterly Monitoring Report (Second Quarter 2008)
- **October 30, 2008** – Quarterly Monitoring Report (Third Quarter 2008)
- **January 30, 2009** – Quarterly Monitoring Report (Fourth Quarter 2008)
- **April 30, 2009** – Quarterly Monitoring Report (First Quarter 2009)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports, was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following:

"I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

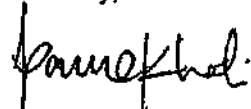
Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

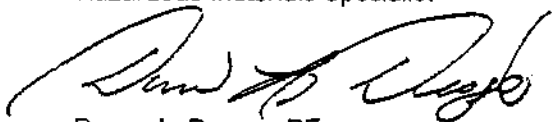
If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,



Paresh C. Khatri
Hazardous Materials Specialist



Donna L. Drogos, PE
Supervising Hazardous Material Specialist

**Alameda County Environmental Cleanup
Oversight Programs
(LOP and SLIC)**

ISSUE DATE: July 5, 2005

REVISION DATE: December 16, 2005

PREVIOUS REVISIONS: October 31, 2005

SECTION: Miscellaneous Administrative Topics & Procedures

SUBJECT: Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:

- a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to dehloptoxic@acgov.org
or
 - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
- b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**

2) Upload Files to the ftp Site

- a) Using Internet Explorer (IE4+), go to <ftp://alcoft01.acgov.org>
 - (i) Note: Netscape and Firefox browsers will not open the FTP site.
- b) Click on File, then on Login As.
- c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
- d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
- e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs

- a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
- b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
- c) The subject line of the e-mail must start with the RO# followed by Report Upload. (e.g., Subject: RO1234 Report Upload)

Mr. Sappal
RD0000127
March 28, 2008, Page 7

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Scott Jackson, HerSchy Environmental, Inc., P.O. Box 229, Bass Lake, CA 93604-0229
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland,
CA 94612-2032
Donna Drogos, ACEH
Paresh Khatri, ACEH
File



*HerSchy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri*

*Alaska Gas
Oakland, CA*

APPENDIX B

Results of Well Installation, Quarterly Groundwater Monitoring, and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California - June 17, 2002

June 17, 2002
Project A51-01.02

Mr. Don Hwang
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577

Re: Results of Well Installation, Quarterly Groundwater Monitoring, and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California

Dear Mr. Hwang:

HerSchy Environmental is pleased to present the results of the most recent phase of monitoring well installation, two rounds of quarterly groundwater monitoring, and a proposed interim remedial action plan (RAP) and additional off site investigation. The site is located at 6211 San Pablo Avenue, which is on the northwest corner of San Pablo Avenue and 62nd Street in Oakland, Alameda County, California (Figure 1). This work was performed in accordance with the May 2, 2001 *Results of Groundwater Monitoring and Work Plan for Additional Investigation, Alaska Gasoline Company, Oakland, California* and the June 30, 2001 work plan addendum, both prepared by HerSchy Environmental. This work was subsequently approved in the July 10, 2001 correspondence from your office regarding the site.

PREVIOUS INVESTIGATIONS

Previous work included the drilling, sampling, and laboratory analysis of soil and groundwater from three soil borings (B-1 through B-3) using hollow stem auger drilling equipment (Figure 2). Details of this investigation are contained in the April 22, 1999 *Results of Underground Storage Tank (UST) Site Assessment, Alaska Gasoline Company, Oakland, California* prepared by HerSchy Environmental. Significant concentrations of gasoline constituents were encountered in soil during this initial investigation. Groundwater was encountered during this investigation at an approximate depth of ten feet, and a groundwater sample was collected from boring B-1. Boring locations are presented in Figure 2 and summarized in Table 1 on the following page:

Table 1
Laboratory Analytical Results, April 16, 1999, Alaska Gasoline, Oakland

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B-1 @ 10'	440	2.3	4.8	7.4	31	3.7
B-1 @ 15'	74	1.4	1.6	1.6	6.3	4.8
B-2 @ 10'	290	3.6	9.0	5.8	24	2.0
B-3 @ 10'	460	3.8	18	7.6	37	86
B-1, GW	99,000	10,000	4,300	3,100	11,000	48,000

All results expressed in parts per million (ppm)
 GW results expressed in parts per billion (ppb)
 TPH = gasoline-range total petroleum hydrocarbons
 MTBE = methyl tertiary butyl ether

Based on the results of this initial investigation, five additional borings (B-4 through B-5) were drilled and sampled using direct push drilling equipment (Figure 2). Results of this work are contained in the July 19, 1999 "Results of Phase II Soil Investigation, Alaska Gasoline Company, Oakland, California" prepared by HerSchy Environmental. Laboratory analytical results of this work are summarized in Table 2 below:

Table 2
Laboratory Analytical Results, Alaska Gasoline, Oakland, June 29, 1999

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B-4 @ 5'	100	0.68	1.4	1.5	7.8	2.2
B-4 @ 10'	14	0.71	ND	0.23	0.11	9.3
B-5 @ 5'	5.7	0.068	0.0061	0.033	0.065	3.5
B-5 @ 10'	34	0.37	0.079	0.17	0.57	2.0
B-6 @ 5'	92	2.3	5.4	1.5	7.0	23
B-6 @ 10'	30	1.3	ND	ND	0.060	46
B-7 @ 5'	3.2	0.12	ND	0.073	0.14	0.023
B-7 @ 10'	280	0.57	0.56	2.8	14	ND
B-8 @ 5'	ND	ND	ND	ND	ND	ND
B-8 @ 10'	270	0.93	2.9	4.6	20	2.7

All results presented in ppm
 ND = below detectable concentrations

Based on the results of the soil investigations described above and the relatively shallow depth to groundwater, a preliminary hydrogeologic investigation was performed. This investigation consisted of the drilling and installation of three groundwater monitoring wells (MW-1 through MW-3). Details of this work are contained in the December 13, 1999 "Results of Drilling, Sampling, and Monitoring Well Installation, Alaska Gasoline Company, Oakland, California" prepared by HerSchy Environmental.

Soil samples were collected from each of the monitoring wells and submitted for laboratory analysis. Monitoring well locations are presented in Figure 3. Laboratory analytical results for soil are summarized in Table 3 below:

Table 3
Laboratory Analytical Results for Soil, October, 1999, Alaska Gasline, Oakland

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-1 @ 5'	1.1	0.14	ND	0.017	0.016	0.065
MW-1 @ 10'	570	4.6	18	10	47	10
MW-2 @ 5'	16	0.25	ND	0.26	0.30	1.2
MW-2 @ 10'	22	0.79	0.38	0.52	2.1	1.4
MW-3 @ 5'	2,200	11	63	35	170	48
MW-3 @ 10'	14	0.12	0.80	ND	0.087	28

All results presented in parts per million (ppm)

Drill cuttings and soil samples from each of the monitoring well locations were described in accordance with the Unified Soil Classification System by a California Registered Geologist. Soil consists entirely of silty clay (CL) from surface grade to an approximate depth of 20 feet in each boring. Groundwater conditions from this investigation and the most recent monitoring events are presented in subsequent sections of this report.

METHODS OF INVESTIGATION

Drilling and Soil Sampling:

Drilling was performed using a truck-mounted drill rig equipped with eight-inch hollow stem augers. Augers were steam cleaned prior to arriving on site. Three monitoring wells (MW-4 through MW-6) and six soil borings (B-9 through B-12) were drilled and sampled at the site (Figure 3). Monitoring wells were installed to a depth of 20 to 25 feet, whereas borings were drilled and sampled to a depth of 10 feet except for boring B-13 where the steel auger plug was lost.

Soil samples were collected using a California modified split spoon sampler equipped with brass liners. The samples were collected at five and ten feet from each of the borings. Samples were collected by driving the sampler ahead of the drill bit. The sampler and liners were cleaned between sampling events.

Soil samples were field screened using a portable organic vapor analyzer (OVA) for the presence of volatile organic compounds (VOCs). All of the soil samples were submitted to the laboratory for analysis.

Samples were placed in a cooler chest with frozen gel packs ("blue ice") and maintained at a temperature of four degrees Celsius or less until delivered to the laboratory. All samples were maintained, transported, and delivered to the laboratory under chain of custody documentation. Soil samples and drill cuttings were described in

accordance with the Unified Soil Classification System by a California Registered Geologist. Drill cuttings were contained in DOT-approved 55-gallon drums and stored on site as directed by the property owner. Soil sampling was discontinued below a depth of ten feet due to the presence of shallow groundwater. Boring logs and well construction details are presented in Appendix A.

Monitoring Well Installation, Development, and Sampling Procedures:

Well construction and annular materials were installed through the hollow stem augers. Groundwater monitoring wells were constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals were constructed with 15 to 20 feet of 0.020-inch factory slotted screen such that 10 to 15 feet of the screened interval is below first encountered groundwater in each of the monitoring wells. Blank casing was installed from the top of the screened interval to surface grade. The monitoring wells were completed flush with surface grade in a traffic rated well cover with a locking well cap. Soil borings were filled with a sand-cement slurry from the bottom of the boring to surface grade.

Annular materials consist of #3 sand from the bottom of the borings to approximately two feet above the screened interval, followed by a minimum one-foot bentonite seal, followed by a sand-cement grout to the surface. Monitoring well elevations were surveyed to the nearest 0.01 feet after installation. Depth to groundwater measurements were made to the nearest 0.01 feet prior to sampling using an electric sounder.

The depth to groundwater was measured in each of the monitoring wells to the nearest 0.01 feet prior to initiating monitoring well development and sampling activities. The depth to groundwater and the total depth of the existing wells were used to calculate the appropriate purge volume. Well development, purging, and sampling was performed using a two-inch submersible pump. Physical characteristics (pH, electrical conductivity, and temperature) were measured prior to development and purging and again prior to sampling. Groundwater samples were collected in paired 40 milliliter vials. Groundwater samples were stored, transported, and delivered in a similar manner as described for soil above. In the absence of floating product, development and purge water was discharged an appropriate distance from the well head. Groundwater field sampling data sheets are presented in Appendix B.

Laboratory Analysis:

Soil and groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). Samples were analyzed using EPA method 8015M for TPH and EPA method 8020 for BTEX and MTBE. Certified analytical reports are presented in Appendix C.

RESULTS OF INVESTIGATION

Soil Conditions:

Soil beneath the site consists primarily of silty clay (CL) in the borings drilled during this investigation. Lesser intervals of silt, clayey silt, and very fine- to fine-grained sand (ML), and very fine to medium-grained or coarse-grained sand (SW) were encountered in some of the borings. Clayey gravel (GC) was encountered at a depth of 25 feet in MW-6, and at 10 feet in B-10.

All of the soil samples were submitted for laboratory analysis. Soil samples all indicated the presence of gasoline constituents based on field observations and screening. Certified analytical reports are presented in Appendix C and summarized in Table 4 below:

Table 4

Laboratory Analytical Results for Soil, November, 2001, Alaska Gasoline, Oakland

<u>Sample</u>	<u>TPH</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>	<u>MTBE</u>
MW-4 @ 5'	25,000	250	1,700	510	2,700	160
MW-4 @ 10'	4.6	0.011	0.080	0.033	0.19	9.8
MW-5 @ 5'	3.1	ND	0.0064	0.0051	0.0070	0.012
MW-5 @ 10'	17	0.067	0.018	0.20	0.25	ND
MW-6 @ 5'	30	0.57	0.14	0.72	2.9	1.5
MW-6 @ 10'	1,900	10	64	37	190	7.6
B-9 @ 5'	100	0.91	1.8	1.8	7.9	33
B-9 @ 10'	250	2.4	6.6	4.5	20	52
B-10 @ 5'	5.5	0.18	0.015	0.11	0.16	4.7
B-10 @ 10'	200	0.63	4.1	3.6	19	1.5
B-11 @ 5'	160	0.84	4.3	2.6	15	15
B-11 @ 10'	530	3.9	36	10	58	82
B-12 @ 5'	220	1.1	6.8	4.2	21	9.4
B-12 @ 10'	99	1.5	4.8	1.8	9.3	44
B-13 @ 5'	110	1.7	5.0	2.1	11	8.1
B-14 @ 10'	22	0.11	0.047	0.12	0.0056	1.5

All results presented in ppm

All of the soil samples collected during the most recent phase of drilling and sampling contained gasoline constituents. The highest concentrations were encountered

in MW-4 at five feet, and in MW-6 at ten feet. Most of the borings indicated an increase in concentrations between five and ten feet, which may be reflective of a widespread "smear" zone above shallow first encountered groundwater.

Groundwater Conditions:

Groundwater was present beneath the site at an approximate depth of 6.41 feet below the surveyed well elevations during the March 31, 2002 sampling event. The elevation of groundwater beneath the site averaged 27.62 feet above mean sea level at the time of the most recent sampling. The groundwater elevation increased approximately 0.61 feet since the November 17, 2001 sampling event. Groundwater gradient was S. 26 degrees W. at a gradient of .0108. Groundwater conditions are summarized in Table 5 and presented graphically in Figures 4 and 5.

Table 5
Groundwater Conditions, Alaska Gasoline, Oakland

Well Number	Elevation	Depth to GW	GW Elevation
November 7, 1999:			
MW-1	34.70	8.53	26.17
MW-2	34.94	8.26	26.68
MW-3	33.74	7.55	26.19
Flow Direction = S. 52 W.; Gradient = .0068			
March 8, 2001:			
MW-1	34.70	6.32	28.38
MW-2	34.94	5.89	29.05
MW-3	33.74	5.36	28.30
Flow Direction = S. 39 W.; Gradient = .0092			
November 17, 2001:			
MW-1	34.70	8.09	26.61
MW-2	34.94	7.75	27.19
MW-3	33.74	7.18	26.56
MW-4	32.38	5.75	26.63
MW-5	33.75	6.22	27.53
MW-6	34.68	7.19	27.49
Flow Direction = S. 50 W.; Gradient = .0091			
March 31, 2002:			
MW-1	34.70	7.18	27.52
MW-2	34.94	6.68	28.26
MW-3	33.74	6.27	27.47
MW-4	32.38	5.40	26.98
MW-5	33.75	6.35	27.40
MW-6	34.68	6.58	28.10
Flow Direction = S. 26 W.; Gradient = .0108			

The groundwater flow direction is toward San Francisco Bay, located approximately 0.75 miles southwest of the site. Regional groundwater flow appears to parallel the surface grade in the area.

Groundwater Quality:

All of the site monitoring wells contained petroleum hydrocarbon-impacted groundwater. The highest overall concentrations are present in MW-3 which is directly down gradient relative the location of the USTs. Relatively high concentrations gasoline constituents are also present in the other monitoring wells except for MW-5 which has relatively low concentrations. The fuel oxygenate MTBE was detected at relatively high concentrations in all of the wells, particularly in down gradient well MW-3. Certified analytical reports are presented in Appendix C and are summarized in Table 6 below:

Table 6
Laboratory Analytical Results for Groundwater, Alaska Gasline, Oakland

Well	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
November 7, 1999:						
MW-1	5,700	170	59	22	85	20,000
MW-2	6,000	1,300	92	50	400	6,800
MW-3	43,000	860	70	ND	65	120,000
March 8, 2001:						
MW-1	17,000	480	150	52	170	38,000
MW-2	41,000	8,100	870	2,000	4,100	26,000
MW-3	90,000	1,800	ND	ND	ND	210,000
November 17, 2001:						
MW-1	10,000	230	210	60	250	22,000
MW-2	18,000	3,700	180	610	640	16,000
MW-3	110,000	1,600	ND	ND	ND	300,000
MW-4	64,000	960	1,400	360	1,600	140,000
MW-5	210	15	12	11	23	4.8
MW-6	3,500	160	260	95	420	1,500
March 31, 2002:						
MW-1	12,000	61	ND	ND	29	35,000
MW-2	32,000	6,500	270	1,700	2,700	19,000
MW-3	130,000	2,400	670	300	390	300,000
MW-4	78,000	4,400	4,700	690	2,700	150,000
MW-5	120	11	7.4	6.1	16	4.2
MW-6	3,200	410	170	82	280	3,000

All results presented in parts per billion (ppb)

All of the site monitoring wells are impacted with gasoline constituents. The concentrations are highest in down gradient wells MW-3 and MW-4. Concentrations are significantly lower in MW-5 than any of the other well, reflecting its distance from and up gradient location relative the USTs. Based on the results of this most recent investigation, it appears that additional investigation and interim remedial action is warranted. A work plan for additional off site well installation, and an evaluation and recommendation of remedial options is presented in subsequent sections of this submittal.

WORK PLAN FOR ADDITIONAL INVESTIGATION

Drilling and Soil Sampling:

Drilling will be performed using a truck-mounted drill rig equipped with eight-inch hollow stem augers. Augers will be steam cleaned prior to arriving on site. Two additional monitoring wells (MW-7 and MW-8) will be drilled and sampled at the site. Site locations are not presented because they will be down gradient and off site, with anticipated restrictions related to underground and overhead utilities. These wells will require encroachment permits from the City of Oakland. Monitoring wells will be installed to a depth of 20 to 25 feet. mark

Soil samples will be collected using a California modified split spoon sampler equipped with brass liners. The samples will be collected at five and ten feet from each of the borings used for well installation. Samples will be collected by driving the sampler ahead of the drill bit. The sampler and liners will be cleaned between sampling events.

Soil samples will be field screened using a portable organic vapor analyzer (OVA) for the presence of volatile organic compounds (VOCs). All of the soil samples will be submitted to the laboratory for analysis.

Samples will be placed in a cooler chest with frozen gel packs ("blue ice") and maintained at a temperature of four degrees Celsius or less until delivered to the laboratory. All samples will be maintained, transported, and delivered to the laboratory under chain of custody documentation. Soil samples and drill cuttings will be described in accordance with the Unified Soil Classification System by a California Registered Geologist. Drill cuttings will be contained in DOT-approved 55-gallon drums and stored on site as directed by the property owner. Soil sampling will be discontinued below a depth of ten feet due to the presence of shallow groundwater.

Monitoring Well Installation, Development, and Sampling Procedures:

Well construction and annular materials will be installed through the hollow stem augers. Groundwater monitoring wells will be constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals will be constructed with 15 to 20 feet of 0.020-inch factory slotted screen such that 10 to 15 feet of the screened interval is below first encountered groundwater in each of the monitoring wells. Blank casing will be installed from the top of the screened interval to surface grade. The monitoring

wells will be completed flush with surface grade in a traffic rated well cover with a locking well cap.

Annular materials will consist of #3 sand from the bottom of the borings to approximately two feet above the screened interval, followed by a minimum one-foot bentonite seal, followed by a sand-cement grout to the surface. Monitoring well elevations will be surveyed to the nearest 0.01 feet after installation. Depth to groundwater measurements will be made to the nearest 0.01 feet prior to sampling using an electric sounder.

The depth to groundwater will be measured in each of the monitoring wells to the nearest 0.01 feet prior to initiating monitoring well development and sampling activities. Well development, purging, and sampling will be performed using a two-inch submersible pump. Physical characteristics (pH, electrical conductivity, and temperature) will be measured prior to development and purging and again prior to sampling. Groundwater samples will be collected in paired 40 milliliter vials. Groundwater samples will be stored, transported, and delivered in a similar manner as described for soil above. In the absence of floating product, development and purge water will be discharged an appropriate distance from the well head.

Laboratory Analysis:

Soil and groundwater samples will be analyzed for gasoline-range total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl-tertiary butyl ether (MTBE). Samples will be analyzed using EPA method 8015M for TPH and EPA method 8020 for BTEX and MTBE. *no oils*

INTERIM REMEDIAL ACTION PLAN

Feasibility Study:

Groundwater beneath the site has been designated as beneficial use. Therefore, it is proposed that gasoline adsorbed to soil be removed as an initial remedial measure, and that a "no action" alternative is inappropriate. Groundwater monitoring during soil vapor extraction/treatment may indicate that future additional direct remediation of groundwater such as air sparging or pump and treat may not be warranted. Nonetheless, air sparge wells and a four-inch groundwater extraction well are proposed to be installed along with the vapor extraction system in anticipation of possible additional direct remediation of groundwater.

The California Underground Storage Tank Cleanup Fund (USTCF) Cost Guidelines (1996) require that at least three alternatives for restoring groundwater resources be evaluated under such conditions. This cost analysis evaluates three alternatives, including excavation and disposal because of the relatively limited lateral and vertical extent of impacted soil and accessibility. A review of the extent and concentration of petroleum fuel in site soils indicates that impacted soil is relatively

widespread beneath the site. The total volume of significantly impacted soil in this area is approximately 3,700 cubic yards of soil.

Of the remedial alternatives available for removing fuel constituents from soil and groundwater without excavation, the most cost effective generally consist of vapor extraction with some form of air abatement measures. The most cost effective and easily permitted air abatement measures are by using either granular activated carbon (GAC) filtration or thermal oxidation (incineration). The cost evaluation assumes the removal of 90 percent of the gasoline adsorbed to soil over a six month operating period. The quantity of gasoline adsorbed to soil has been estimated by reviewing boring logs and laboratory analytical results from previous investigations.

The surface area underlain by petroleum hydrocarbon-impacted soil in excess of 100 ppm is relatively widespread around the USTs and dispensers, and in the southwest portion of the site which appears to be the dominant groundwater flow direction. Significantly impacted soil appears to be restricted to less than 10 feet in depth due to relatively shallow groundwater.

Using data gathered to date, it is estimated that the average concentration of TPH beneath the site 2,000 ppm. The quantity of petroleum hydrocarbon-impacted soil is estimated to be a combined maximum of approximately 99,000 cubic feet (approximately 3,700 cubic yards). Using an average soil weight of 2,600 pounds per yard, the quantity of gasoline in soil is estimated to be 19,240 pounds or approximately 3,200 gallons. The cost evaluation of soil vapor extraction and treatment alternatives assumes the removal of 90 percent of the gasoline adsorbed to soil (2,880 gallons) over a six month year operating period. The estimated cost of the remedial action options are presented in Table 8 below:

Table 8
Remedial Alternative Costs

Alternative	Estimated Cost
Excavation and Treatment:	
Demolition/Replacement of existing structures/USTs	\$250,000
Excavate 3,700 cubic yards soil @ \$6.00/yd	\$22,200
Replace/compact @ \$4.75/yd	\$17,575
Laboratory Analysis, 35 samples @ \$100/sample	\$3,500
Transport/disposal of 3,700 cubic yards @ \$20/yd.	\$74,000
Total Excavation/Disposal:	\$367,275
Carbon Adsorption (GAC):	
Installation/Permitting:	
Direct Labor	\$22,000
Materials and Equipment	\$5,000

Table 8
(continued)

Alternative	Estimated Cost
Air Sampling (Laboratory)	\$600
One Year Monitoring/Reporting/O & M:	
Direct Labor	\$10,140
Blower Rental	\$4,000
Expenses (mileage, PID, etc.)	\$7,020
GAC @ 20% Loading (inc. disposal)	\$214,000
Total GAC:	\$262,760
Thermal Oxidation:	
Installation/Permitting:	
Direct Labor	\$22,000
Materials and Equipment	\$5,000
Air Sampling (Laboratory)	\$600
One Year Monitoring/Reporting/O & M:	
Direct Labor	\$3,240
Expenses (mileage, PID, etc.)	\$1,620
Thermal Oxidizer Rental @ \$3,200/mo.	\$19,200
Fuel @ \$500/wk	\$13,000
PG & E hookup	\$2,000
Total Thermal Oxidizer:	\$66,660

Costs for installation and direct labor for GAC and thermal oxidation are shown as being identical in that similar equipment and materials (blowers, fencing, piping, etc.) are needed for both vapor extraction and treatment alternatives. Labor for operation and maintenance (O & M) are somewhat different due to weekly air monitoring requirements for GAC as opposed to monthly monitoring for thermal oxidizer equipment as dictated by the Bay Area Air Quality Management District (BAAQMD). Permitting and startup inspection requirements of the BAAQMD are otherwise identical.

The primary cost differences are related to the use and disposal of GAC versus the rental and fuel cost of the thermal oxidizer equipment. The cost for purchase and disposal of the GAC filters is approximately \$400 per 180 pound drum. The rental charges for the thermal oxidizer unit will remain constant during the duration of the project. Fuel charges for the thermal oxidizer will be relatively low initially when influent concentrations are high, and will increase gradually as influent concentrations decrease. However, past experience with similar projects suggests that an estimated fuel cost of \$500 per week is reasonable. The only other charges that differ between the two

alternatives are for the natural gas hookup to fuel the oxidizer and blower rental for the GAC filters.

Based on the cost analysis presented above, it is apparent that the most cost effective interim corrective action is the installation and operation of an SVES using thermal oxidation for air abatement. The SVES will be operated concurrent with air sparging of groundwater. A four-inch groundwater extraction well will be installed in the event that future direct treatment of groundwater is required to complete the corrective action. Therefore, a work plan for installation of a SVES, including the installation of vapor extraction, air sparging, and a groundwater extraction well is presented below.

Soil Vapor Extraction and Treatment:

The petroleum hydrocarbon-impacted soil will be treated in place by installation of a SVES. Installation of air sparging wells and a groundwater extraction well will be performed simultaneous with the SVES installation. Soil vapor extraction and treatment will be performed using a shallow vapor extraction "gallery" consisting of a series of ten-foot screened intervals in 13 vapor extraction wells (VW-1 through VW-13) along individual pipe runs (Figure 6). The exact configuration of the piping and location of the air abatement equipment will be determined after consultation with the site operator, but will likely be on the north side of the existing store building. Soil vapor treatment will be performed by thermal oxidation.

An appropriately sized blower or similar equipment will be used for the extraction of VOCs from soil. The above ground blower and air abatement equipment will be located in a secure fenced area, most likely on the northwest area of the property. Pipelines will be installed below grade from the vapor extraction wells, air sparging wells, and groundwater extraction well to a fenced area constructed for the remediation equipment. A vacuum pump (blower) will transfer the VOCs to the air abatement equipment for destruction of the VOCs. Vapor extraction and treatment will be performed under a permit to operate (PTO) issued by the BAAQMD.

Gasoline concentrations in groundwater are expected to decrease concurrently along with the removal of gasoline constituents from overlying soil. This occurs as the partial vapor pressure changes in the soil pore spaces within the vadose zone, causing gasoline to volatilize from groundwater. A more important mechanism is the change to an aerobic environment in the "core" of the groundwater contaminant plume that will accelerate naturally occurring biodegradation. This change will be dramatic with the concurrent air sparging of groundwater during SVES operation. Documentation of decreasing concentrations of gasoline constituents in groundwater will be via continued quarterly groundwater monitoring.

Vapor Extraction, Air Sparging, and Groundwater Extraction Well Installation Procedures:

Vapor extraction, air sparging, and groundwater extraction well installation will be performed using hollow stem auger drilling equipment. Vapor extraction and air sparging wells will be installed with eight-inch augers and two-inch diameter well casing. The groundwater extraction well will be installed using ten-inch augers and four-inch diameter well casing.

Vapor extraction wells will be installed to a depth of approximately 12 feet with a ten-foot screened interval. Air sparging wells (AS-1 through AS-5) will be installed to a depth of 25 feet with a five-foot screened interval. Groundwater extraction well EX-1 will be installed with four-inch casing to a depth of 30 feet with a 25-foot screened interval.

Trenching and Pipe Installation:

All of the piping for the SVES will be installed at a depth of 14 to 18 inches under concrete pavement. The pavement will be saw cut to accommodate a 14-inch trench. Pavement will be removed and taken to a pavement recycling facility. Pavement will be removed and trenching performed using a backhoe with a 14-inch trenching bucket. Two-inch schedule 40 PVC irrigation pipe will be used to install the horizontal piping of the SVES.

Horizontal piping will be attached to the vertical vapor extraction and air sparging wells with PVC "T's" and 90 degree elbows. Vapor extraction and air sparging lines will lead to two-inch above ground PVC ball valves within a fenced enclosure. The groundwater extraction well will be hooked into the horizontal PVC piping using 90 degree sweeps to accommodate hoses and electrical wiring for future installation of down-hole water extraction equipment at a later date. The water extraction piping will end above-ground within the equipment enclosure as a capped line.

Upon completion of trenching, well drilling, and installation of the horizontal lines, the trenches will be backfilled with native soil and compacted. The pavement will be replaced with concrete pavement. All of the vapor extraction and air sparge wells will be below ground beneath pavement. The four-inch water extraction well will be completed beneath a 12-inch well cover installed flush with surface grade.

Well Installation Procedures:

Borings for well installation will be drilled using hollow stem auger drilling equipment. Borings will be drilled directly within previously excavated trenches. Vapor extraction and air sparging wells will be drilled with eight-inch diameter augers, whereas the groundwater extraction well will be drilled with ten-inch augers. Vapor extraction wells will be drilled to a depth of 12 feet. Air sparging wells and the groundwater extraction wells will be drilled to depths of 25 and 30 feet, respectively. Soil will be

13 due to
below
grade
installation

described in accordance with the Unified Soil Classification System by a California Registered Geologist. Boring logs will be prepared by description of drill cuttings, soil stuck to the auger plug brought to the surface during auger connections, and by drilling habit.

All well construction and annular materials will be installed through the hollow stem augers. Well construction materials will consist of schedule 40 PVC casing and screen. Vapor extraction and air sparging wells will be constructed with two-inch diameter materials. Vapor extraction wells will be constructed with 10 feet of 0.020-inch factory slotted screen from 2 to 12 feet, and blank casing from 2 feet to surface grade. Air sparging wells will be constructed with five feet of screen from 20 to 25 feet, and blank casing from surface grade to 20 feet. The groundwater extraction well will be constructed with similar four-inch diameter materials. The screened interval will extend from 5 to 30 feet, with blank casing from surface grade to 5 feet.

? Annular materials will consist of number 3 sand from the bottom of the borings to approximately two feet above the screened interval in all of the wells. A continuous bentonite seal will be installed from the top of the sand pack to surface grade. The vapor extraction and air sparging wells will be connected directly to horizontal piping beneath pavement. The extraction well will be completed with a locking well cap inside of a 12-inch well cover installed flush with surface grade.

If you have any questions or need additional information, please contact me at the letterhead address or at (559) 641-7320.

With best regards,

Herman Schymiczek
Registered Geologist #4165
Certified Engineering Geologist #2023

pc: Mr. Pritpaul Sappal
Mr. Syed Nawab, Alaska Gasoline Company

Soil sample from 5-8 ft (cap-fringe)
in each well.

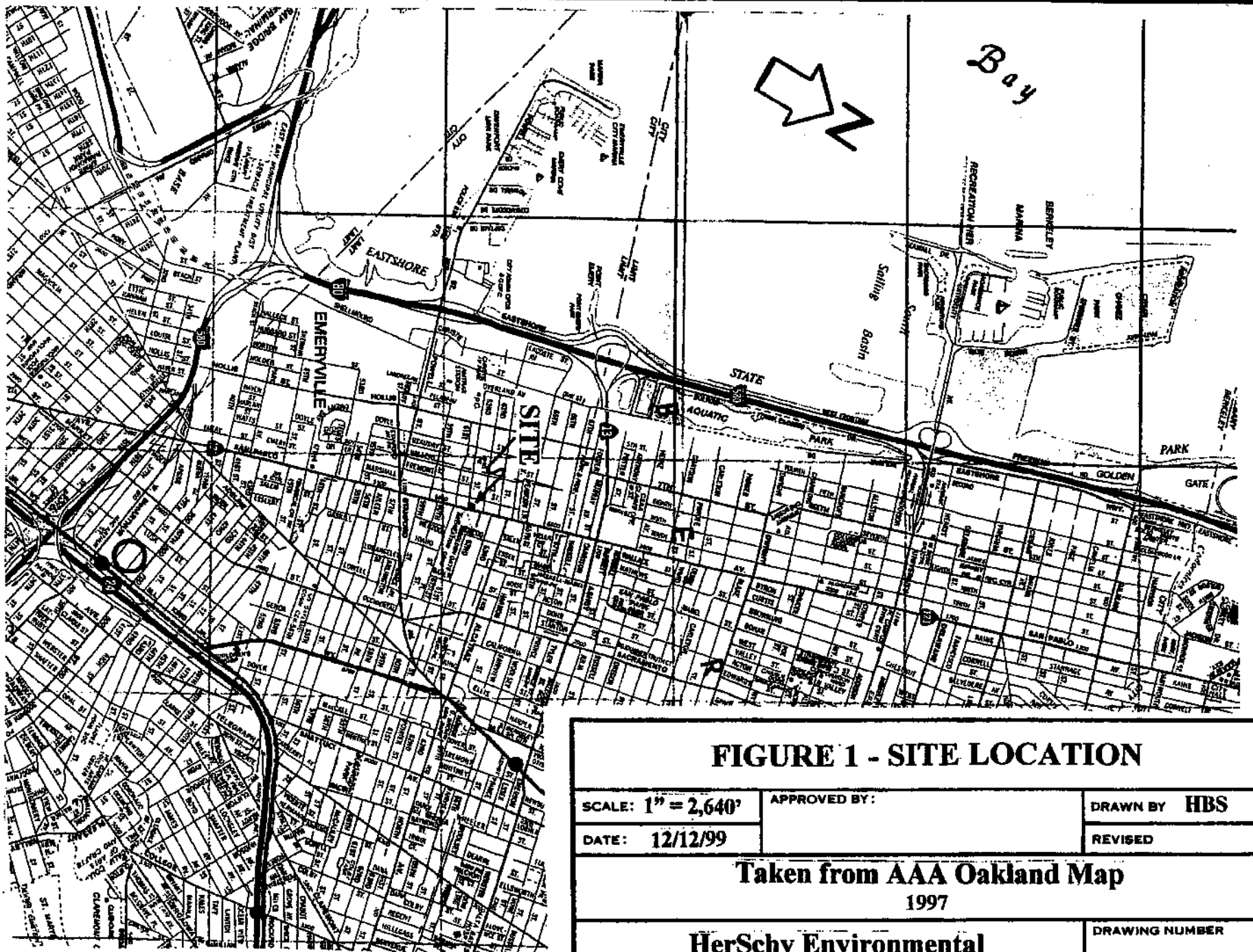


FIGURE 1 - SITE LOCATION

SCALE: 1" = 2,640'

APPROVED BY:

DRAWN BY HBS

DATE: 12/12/99

REVISED

Taken from AAA Oakland Map
1997

HerSchy Environmental

DRAWING NUMBER

RESIDENTIAL

OFFICE/STORE

PROPERTY
BOUNDARY

RESIDENTIAL



62nd STREET

CANOPY

USTs

B-8
MW-1

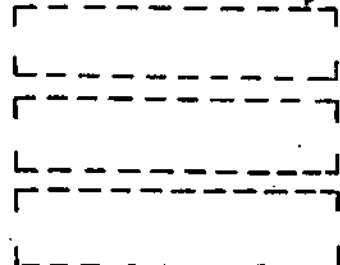
B-7

B-4

B-6

MW-3

B-3



B-5

B-2

MW-2

B-1

FIGURE 2 - BORING/WELL LOCATIONS

SCALE: 1" = 20'

APPROVED BY:

DRAWN BY HBS

DATE: 4/27/99

REVISED 12/12/99

SAN PABLO AVENUE

ALASKA GASOLINE COMPANY
Oakland, California

HerSchy Environmental

DRAWING NUMBER

RESIDENTIAL

OFFICE/STORE

PROPERTY
BOUNDARY

MW-1

MW-4

MW-3



USTs

MW-6

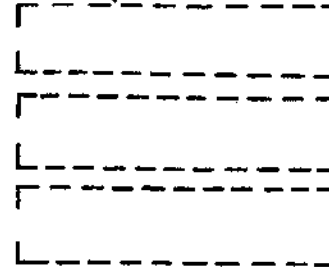
RESIDENTIAL

B-9

B-11

B-13

CANOPY



MW-2

B-10

B-12

B-14

MW-5

62nd STREET

SAN PABLO AVENUE

FIGURE 3 -- NEW BORINGS AND WELLS

SCALE: 1" = 20'

APPROVED BY:

DRAWN BY HBS

DATE: 12/12/99

REVISED 6/16/02

ALASKA GASOLINE COMPANY
Oakland, California

HerSchy Environmental

DRAWING NUMBER

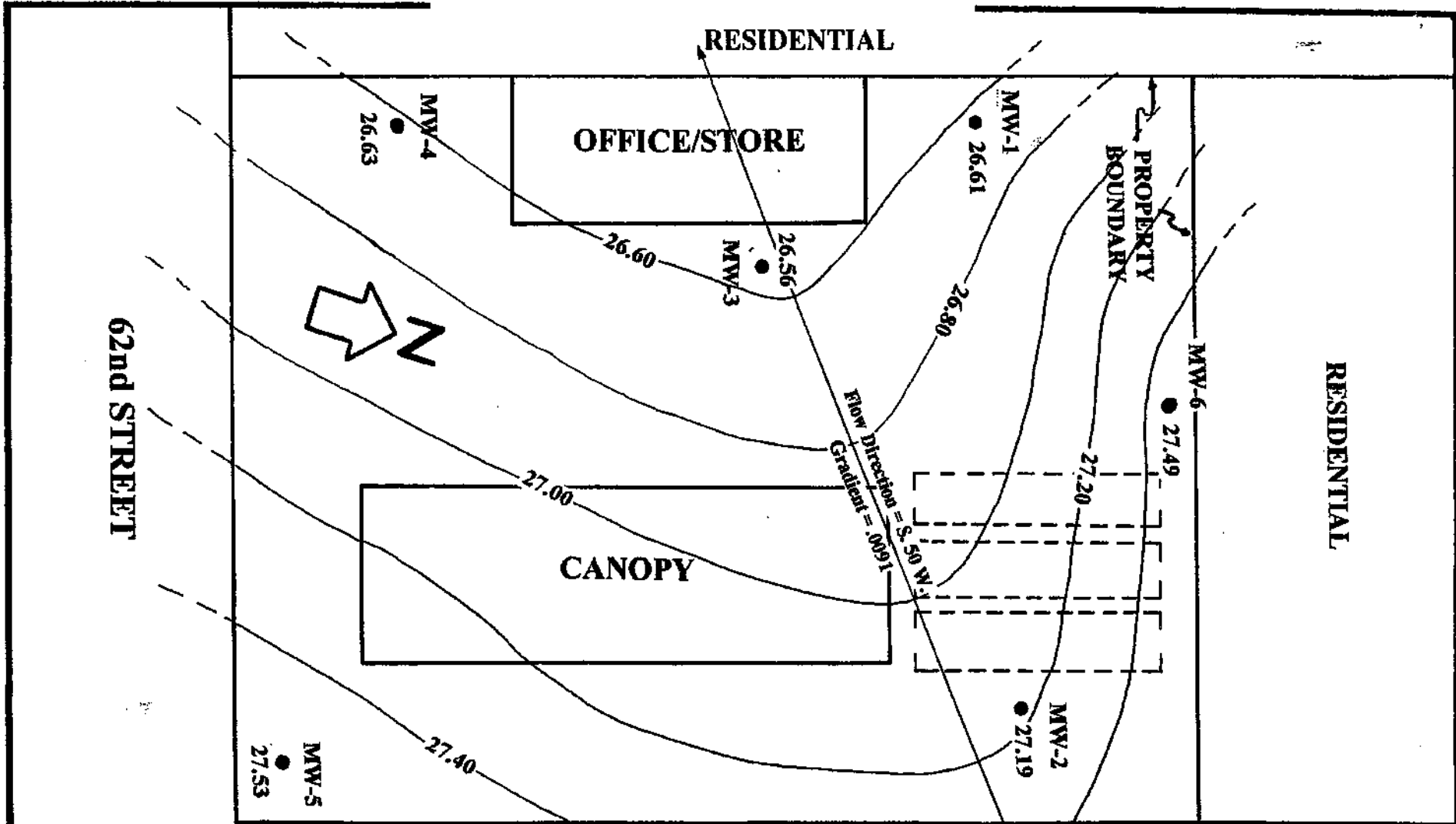


FIGURE 4 – GROUNDWATER CONDITIONS

November 17, 2001

SCALE: 1" = 20'

APPROVED BY:

DRAWN BY HBS

DATE: 12/12/99

REVISED 6/16/02

ALASKA GASOLINE COMPANY

Oakland, California

HerSchy Environmental

DRAWING NUMBER

SAN PABLO AVENUE

62nd STREET

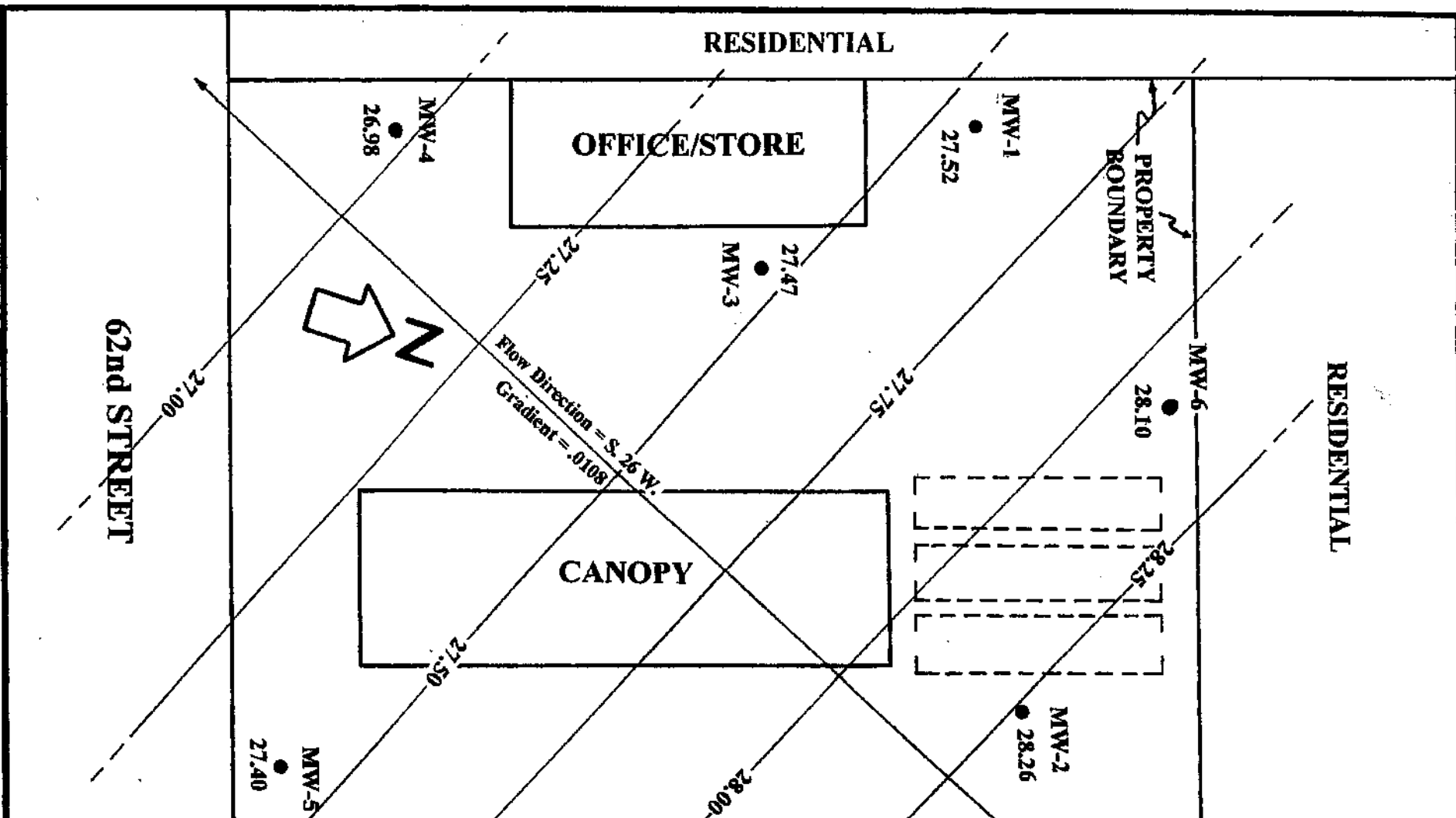
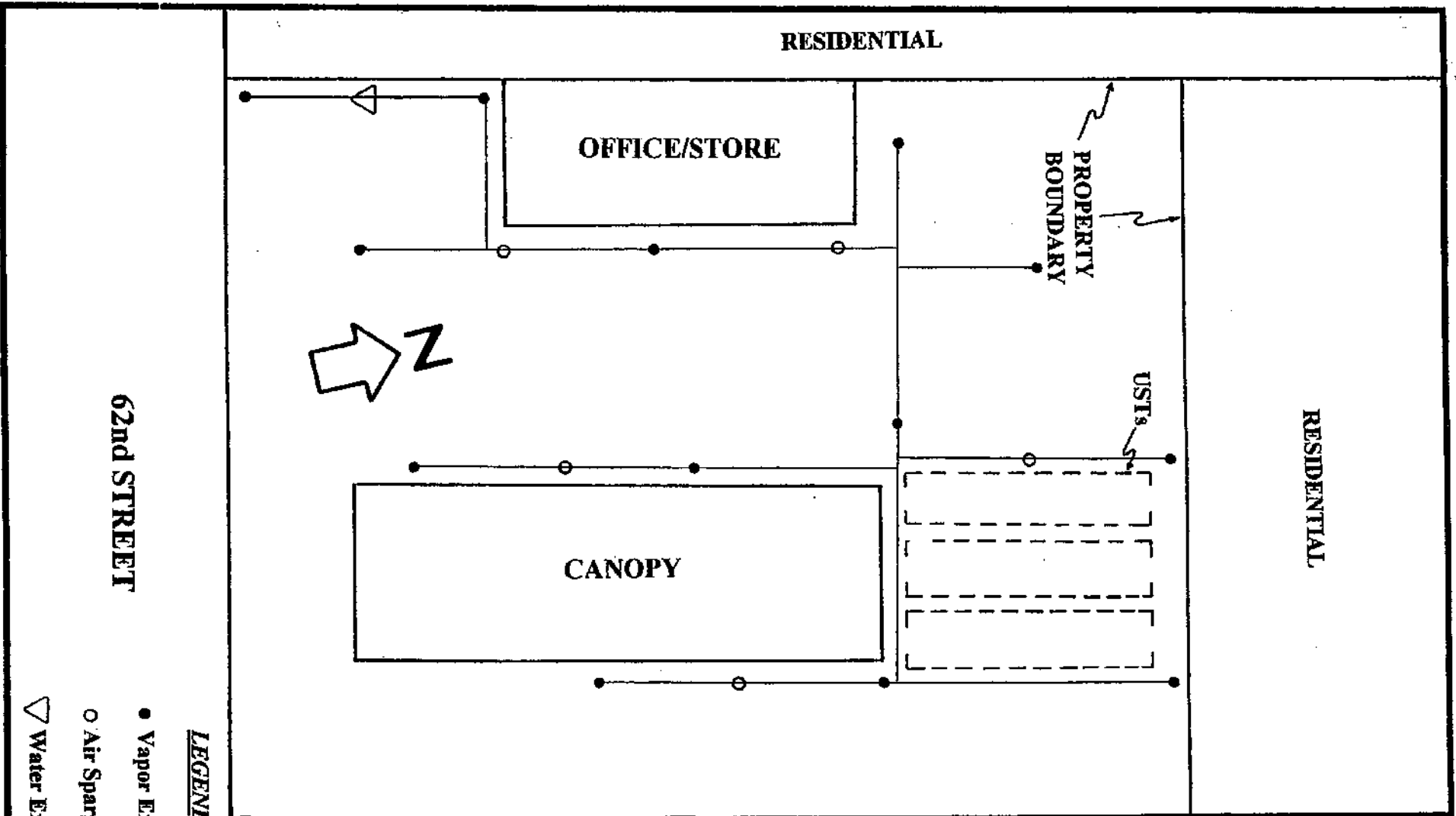


FIGURE 5 – GROUNDWATER CONDITIONS
 March 31, 2002

SCALE: 1" = 20'	APPROVED BY:	DRAWN BY HBS
DATE: 12/12/99		REVISED 6/16/02
ALASKA GASOLINE COMPANY Oakland, California		
HerSchy Environmental		DRAWING NUMBER



LEGEND

- Vapor Extraction Well
- Air Sparge Well
- ▽ Water Extraction Well

FIGURE 6 – SVES SYSTEM LAYOUT

SCALE: 1" = 20'	APPROVED BY:	DRAWN BY HBS
DATE: 4/27/99		REVISED 6/16/02

ALASKA GASOLINE COMPANY
Oakland, California

HerSchy Environmental

DRAWING NUMBER



Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX C
Regulatory Correspondence – August 13, 2003

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 13, 2003

Mr. Pritpaul Sappal
2718 Washburn Court
Vallejo, CA 94591

Dear Mr. Sappal

Subject: Fuel Leak Case RO0000127, Alaska Gas Station, 6211 San Pablo Ave.,
Oakland, CA 94608

Alameda County Environmental Health, Local Oversight Program (LOP) staff has reviewed the case file including the June 17, 2002 HerSchy Environmental report, *Results of Well Installation, Quarterly Groundwater Monitoring and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California*. The report documents the installation of wells MW-4 through MW-6 in November 2001 and their incorporation into groundwater monitoring sampling in November 2001 and March 2002. It also documents the results of soil samples collected from borings B-9 through B-14, located on the east and west sides of the canopy and dispenser islands. Widespread gasoline, BTEX and MTBE contamination was observed in both soil and groundwater. Because of these results, an Interim Remedial Action (IRA) work plan was included in this report. The IRA work plan proposes the installation of a network of vapor extraction wells, air sparge wells plus a water extraction well. Your IRA work plan is approved with following technical comments.

Technical Comments

- A soil vapor and groundwater extraction test should be performed at the site. This will allow you to design the treatment appropriately. It may necessary to modify the number and locations of wells particularly groundwater extraction wells, if elevated petroleum contamination is shown to be migrating off-site.
- Our office concurs with using the most cost effective petroleum treatment method, ie thermal oxidation.
- Post remediation sampling of soil and groundwater will be required before remediation completion and site closure can be considered.
- Please confirm the locations of any off-site monitoring wells with our office prior to installation.
- Please continue quarterly groundwater monitoring at this site.
- Please confirm the UST system has been inspected and approved for use by the City of Oakland Haz Mat Office.

Please submit the following technical reports according to the following schedule:

- September 15, 2003- Groundwater monitoring report with monitoring reports submitted quarterly thereafter ie December 15, 2003, March 15, 2004, etc
- September 15, 2003- Begin installation of IRA system with updates on remediation activities included in the quarterly monitoring reports.

Mr. Pritpaul Sappal
RO0000127
6211 San Pablo Ave., Oakland, CA 94608
August 13, 2003
Page 2

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,



Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, D. Drogos

✓ Mr. H. Schymiczek, HerSchy Environmental, P.O. Box 229, Bass Lake, CA 93604-0229
Ms. S. Torrence, Alameda County District Attorney Office, 7677 Oakport St., Suite 650,
Oakland, CA 94621

Mr. H. Gomez, City of Oakland Fire Services Agency, 1605 M. L. King Jr. Way, Oakland,
CA 94612

Mr. Syed Nawab, 344 N. Delaware St., No. 3, San Mateo, CA 94401

IRAP6211San PabloAve



Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX D

***Direct-Push Soil and Groundwater Assessment, Alaska Gasoline Company,
Oakland, California, Case #RO 0000127 - November 16, 2006***

Nov 08 2006 2:04PM HerSchy Environmental Inc (559) 641-7340

p.1

November 8, 2006

Mr. Barney Chan
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

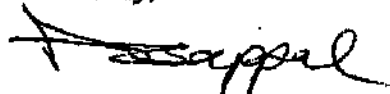
**RE: Direct-Push Soil and Groundwater Assessment
Alaska Gas
6211 San Pablo Avenue
Oakland, California**

Dear Mr. Chan:

Attached for your review and comment is the November 8, 2006 "Direct-Push Soil and Groundwater Assessment, *Alaska Gasoline Company, Oakland, California, Case #RO000127*" report prepared by HerSchy Environmental, Inc upon my behalf, for the above-referenced site.

As the legally authorized representative of the above-referenced project, I have reviewed the attached report and declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,



Mr. Pritpaul Sappal



erSchy Environmental, Inc.

November 16, 2006
Project A51-01

Mr. Barney Chan
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

**Re: Direct-Push Soil and Groundwater Assessment, Alaska Gasoline Company,
Oakland, California, Case #RO0000127**

Dear Mr. Chan:

HerSchy Environmental, Inc. is pleased to present this work plan to assess the down-gradient lateral extent of dissolved and free phase petroleum hydrocarbons in groundwater at the above-referenced site. The site is located at 6211 San Pablo Avenue in Oakland, California (Figure 1). This work would be in lieu of, or a preliminary location assessment for, the previously proposed off-site and down-gradient monitoring wells. It is anticipated that through direct-push assessment of subsurface soil and groundwater, a relatively quick and effective assessment of down-gradient and off-site conditions can be obtained.

HerSchy Environmental, Inc. continues to work on options permissible by the City of Oakland planning department for monitoring well installation. Off-site well installation will require unusual strategies for permitting. As such, utilizing direct push sampling of soil and groundwater down-gradient of the site is a cost-effective and limited impact method, with significant amount of data obtained with relatively little field work required. Additionally, direct-push borings would be temporary, not requiring the long-term insurance requirements of the City of Oakland. The results of this off-site and down gradient assessment may discern if the locations of the proposed permanent wells should be amended. Alternatively, it may be found that off-site migration is not a great concern, and that permanent wells are not warranted. A work plan for soil and groundwater assessment off-site is presented below.

DIRECT PUSH SOIL AND GROUNDWATER ASSESSMENT

Boring Installation and Sampling

Soil and groundwater sampling will be performed utilizing a direct-push rig, which advances a two-inch plastic sleeve hydraulically into the subsurface. Each sleeve is four feet long and collects relatively undisturbed and continuous soil sample. Each four-foot soil "core" is removed once completely advanced, with new sleeves advanced back-to-back to the desired depth.

Soil will be described in accordance with the Unified Soil Classification System, manual and visual methods, by a geologist working under the direction of a California Professional

Geologist. Soil will be examined and field screened for evidence and degree of contamination. Examination of soil will include noting discoloration, staining, and odors. Field screening will be performed utilizing a portable organic vapor analyzer (OVA) to measure volatile organic compounds (VOCs). Selected sections of each core will be placed in zip lock bags and set in the sun for a minimum of 10 minutes to facilitate volatilization. The OVA probe will be inserted into the bag, with concentrations in parts per million (ppm) recorded.

Borings will be placed as shown in Figure 2, beginning with the locations closest to the site (DP-1 and DP-2), followed by the location most directly down-gradient (DP-3). If still warranted after field assessment in DP-1 through DP-3, DP-4 and DP-5 locations will be decided on based on field OVA data and observation. Additional borings may be placed further off-site as necessary, within the general area as outlined. In order to obtain confirmatory data, samples will be collected from the capillary fringe and within 12 inches below first encountered groundwater. Because nominal product recharge was observed in on-site well EX-1 during the most recent free product removal test (September 2006), observing free product in direct push borings is unlikely. Results from samples collected at the capillary fringe and just below first encountered groundwater are expected to be returned at elevated concentrations if free product is present, perhaps at concentrations in terms of percent of volume.

Groundwater samples will also be collected from each boring to further assess any free product and dissolved phase contaminants. Samples will be collected utilizing a hydropunch tool attached to a steel rod and driven into groundwater. The hydropunch will be opened several inches was driven to the desired depth to expose a 3/4-inch perforated casing. A bailer would be used to collect a water sample, and placed in 40-millimeter vials. Collection of groundwater samples is contingent upon groundwater recharge; many places in the area, including areas of the Site, have very slow recharge rates, and could take days to recharge.

Soil samples will be collected by cutting the desired section of tubing that corresponds to the capillary fringe and saturated zones. The ends will be covered with Teflon tape, capped with plastic end caps, and placed in a cooler chest containing frozen gel packs, "blue ice". Groundwater samples will be collected in 40-millimeter vials, individually stored in zip-lock bags, and placed in the cooler chest above. All samples will be maintained at four degrees Celsius or below, and transported under chain-of-custody documentation until delivery to a certified laboratory.

Analytical Analysis


Groundwater and soil samples will be analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tert butyl ether (MTBE). Analytical methods will include EPA method 8015M for TPHg and EPA method 8020 for BTEX and MTBE. In addition, the fuel additives and oxygenates MTBE, di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) will be analyzed using EPA Method 8260b.

Scheduling

Upon approval from your office, HerSchy Environmental, Inc. will begin the permitting and drilling scheduling processes. HerSchy will evaluate the options of installation of these borings in private property, or in the city right-of-way (inside of sidewalks), and determine the most expedient and appropriate option.

If you have any questions, or require additional information, please contact the undersigned at (559) 641-7320.

With best regards,
HerSchy Environmental, Inc.


Scott Jackson
Professional Geologist #7948



cc: Mr. Pritpaul Sappal
Mr. Hernan Gomez, Oakland Fire Services Agency
Mrs. Susan M. Torrence, Deputy District Attorney



Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX E
Regulatory Correspondence – November 21, 2006

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



file

November 21, 2006

Mr. Pritpaul Sappal
2718 Washburn Court
Vallejo, CA 94591

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

Dear Mr. Sappal

Subject: Fuel Leak Case RO0000127, Alaska Gas Station, 6211 San Pablo Ave.,
Oakland, CA 94608

Alameda County Environmental Health staff has reviewed the case files for the subject site including the November 16, 2006 Direct-Push Soil and Groundwater Assessment from HerSchy Environmental. This work is recommended since the previously approved off-site well installations have not been approved and are not likely to be resolved in the immediate future. The proposal for temporary borings will give quicker information and allow better decision-making in determining the location of permanent wells. Although we concur with this approach, we request you address the following technical comments when performing this investigation.

TECHNICAL COMMENTS

1. We reiterate that the approved air sparge/vapor extraction system should be in operation and that all future monitoring reports include a summary of the operation of the remediation system, minimally including, the days of operation, the wells operated, the mass removed during the past quarter and the total cumulative mass removed. For those well(s) where free product prevents operation, dual phase extraction is recommended prior to air sparge/vapor extraction.
2. We understand that you continue to be unable to satisfy the City of Oakland insurance requirements for the installation of off-site wells. Our approval of the direct push investigation does not relieve you of the need for these wells. It will provide information to best locate these wells. We continue to monitor your progress in obtaining the requirements necessary for installation of these wells whose locations should be determined after the direct push investigation.
3. Although we concur with the direct push soil and groundwater proposal, we request that you observe the following:
 - All the proposed borings should be drilled. We believe the plume cannot be defined by only three borings as inferred in the work plan.
 - Two additional borings are recommended in locations immediately down-gradient of areas impacted with free product. I have marked these locations with (x) on the attached Figure 2.
 - Soil samples are proposed for sampling from the capillary fringe and 12 inches below first encountered groundwater. Please sample at every five-foot interval and as determined by field screening results.
 - We request that you immediately pursue any off-site access agreement that you may need to complete these investigations. Please inform our office if you have difficulties and we will mail a letter to the owners of the property.

Mr. Pritpaul Sappal
RO127, 6211 San Pablo Ave., Oakland
Page 2 of 3

TECHNICAL REPORT REQUEST

Please submit the following technical report according to the following schedule:

- Soil and Groundwater Investigation Report- 60 days after completion of investigation

ELECTRONIC SUBMITTAL OF REPORTS

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

In order to facilitate electronic correspondence, we request that you provide up to date electronic mail addresses for all responsible and interested parties. Please provide current electronic mail addresses and notify us of future changes to electronic mail addresses by sending an electronic mail message to me at barney.chan@acgov.org.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the

Mr. Pritpaul Sappal
RO127, 6211 San Pablo Ave., Oakland
Page 3 of 3

professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

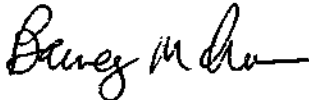
Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6765.

Sincerely,



Barney M. Chan
Hazardous Materials Specialist

Enclosure: Figure 2

C: files, D. Drogos

Mr. Scott Jackson, HerSchy Environmental, P.O. Box 229, Bass Lake,
CA 93604-0229

Ms. S. Torrence, Alameda County District Attorney Office, 7677 Oakport St.,
Suite 650, Oakland, CA 94621

Mr. Hernan Gomez, City of Oakland Fire Services Agency, 1605 M. L. King Jr. Way,
Oakland, CA 94612

Mr. Sunil Ramdass, SWRCB, 1001 I St., P.O. Box 944212, Sacramento, CA 94244
Assem & Manjit Sappal, 2 Green Place, Lafayette, CA 94549-6019

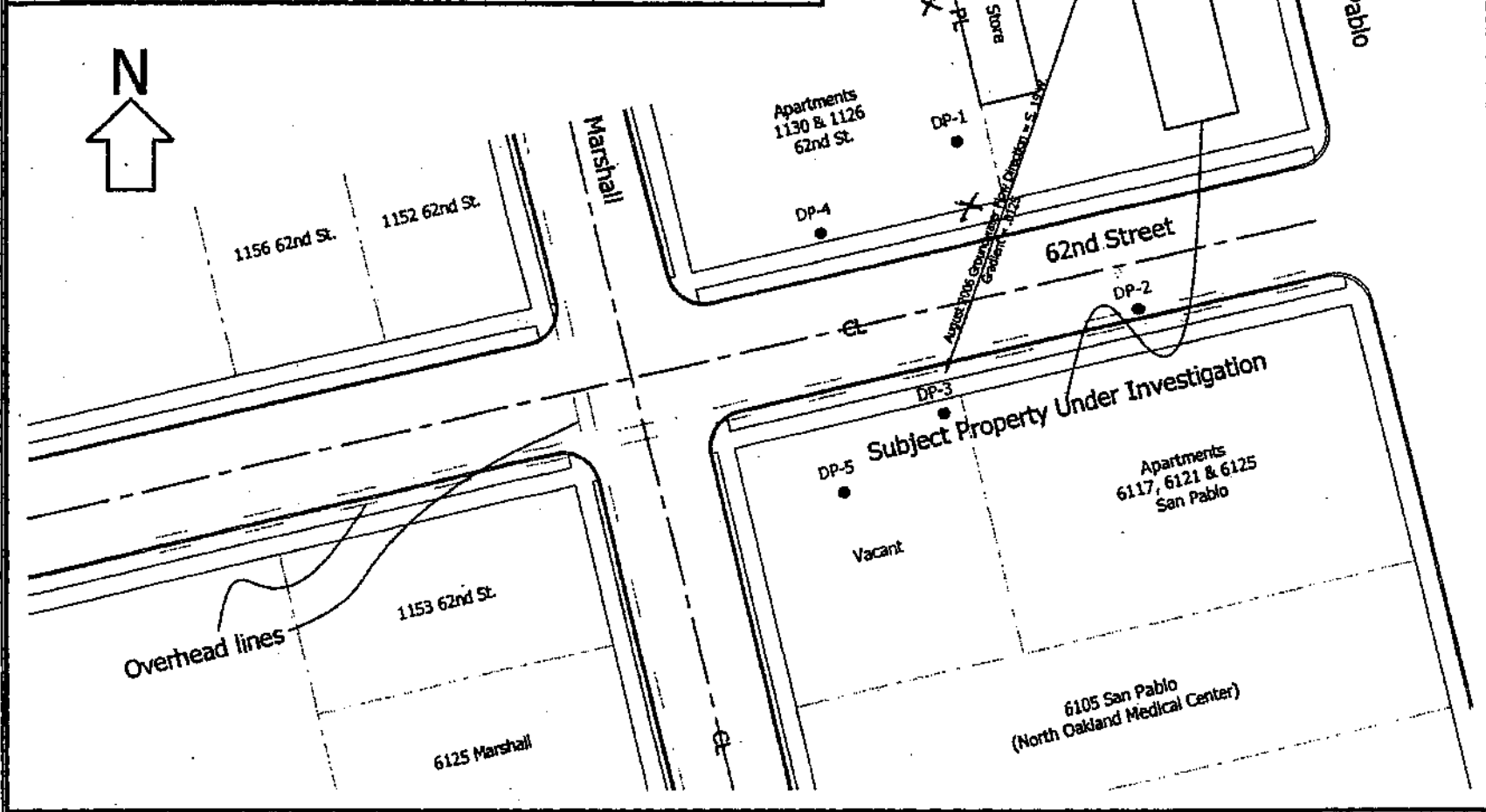
PROPOSED DIRECT-PUSH BORING LOCATIONS

SCALE: 1" = 50'	APPROVED BY:	DRAWN BY: SAJ
DATE: November 2006		REVISED:

ALASKA GAS
Oakland, California

HerSchy Environmental, Inc.

DRAWING NUMBER:
FIGURE 2





Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX F
Site Update, August 29, 2007

August 29, 2007

Mr. Barney Chan
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

RE: Site Update
Alaska Gas
6211 San Pablo Avenue
Oakland, California

Dear Mr. Chan:

Attached for your review and comment is the August 29, 2007 *Site Update* report prepared by HerSchy Environmental, Inc upon my behalf, for the above-referenced site.

As the legally authorized representative of the above-referenced project, I have reviewed the attached report and declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,



Mr. Pritpaul Sappal



erSchy Environmental, Inc.

August 29, 2007

Mr. Barney Chan
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502-6577

RE: Site Update
Alaska Gas
6211 San Pablo Avenue
Oakland, California

Dear Mr. Chan,

We are writing to inform you of the progress with the various efforts being undertaken at Alaska Gas in Oakland. Recently we completed several of the required soil borings as well as the replacement of damaged well MW-1R. Three of the six approved soil borings were completed within the City of Oakland right of way (DP-1 through DP-3, Figure 1). We are still working towards access agreements with the City of Oakland Housing Authority and Mr. Paul Wang (Property owner at southeast corner of Marshall St. and 62nd). It was determined that it would be productive and necessary to proceed with several of the borings in conjunction with replacement of MW-1R, rather than wait for the access agreements from the other properties in order to move this project forward.

The locations were placed in the field based on pre-approved boring locations, proximity to underground and overhead utilities, and slight adjustments to place borings in the sidewalk area and out of private property. Each direct push boring was pushed to a total depth of 16 feet below grade (fbg). The total depth was determined during drilling activities through an examination of soil conditions and the locations of visible smear zones. Soil samples were collected at five foot intervals and as determined by field screening results. Water samples were also collected for laboratory analyses through the use of temporary well screen placed in bore holes due to slow water recharge rates.

Based on a combination of field observations and laboratory data, it appears that the contaminant plume may be larger than initially anticipated. Laboratory analyses of the soil and groundwater samples are included as Attachment A. Upon completion of the full suite of soil borings, a report with additional details of our findings will be submitted. With these preliminary findings in mind, we believe it is necessary to modify approved boring locations and/or add

additional soil boring points to garner a better picture of what appears to be a larger plume area. Modifications of approved locations to sidewalk locations would also greatly expedite collection of off-site data by avoiding the need to obtain access through a private owner or the Housing Authority for the City of Oakland. We have included a map with the completed borings as well as the newly proposed locations as Figure 1. As a further method to both expedite work and save costs, it seems highly feasible and advantageous to advance soil borings with a hand auger taking discrete soil samples with a slide hammer and sampling tubes and water samples with the use of temporary well casing. This would avoid delays due to driller availability. If approved, we would request that this set of boring locations supersede all previous versions as a means of clarifying our objectives. We will continue to work towards obtaining the access agreements needed to complete borings at the properties on the southeast and northeast corners of Marshall St. and 62nd St.

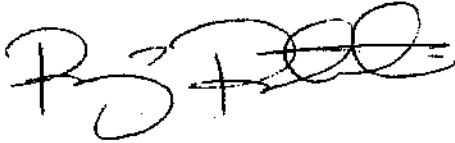
As a continued effort in removing free product, free product was removed from well EX-1 using a disposable hand bailer. In all, approximately 8-gallons of product has been removed utilizing this method during two removal events; it appears that all 8 gallons could have been removed during one event. Prior to any removal efforts, product thickness measured 1.40 feet. Product thickness after the initial removal event on July 19, 2007 was 0.53 feet after removing approximately 6-gallons of product. When measured again August 14, 2007, product thickness was measured at 0.50 feet which indicates that recharge had been nonexistent over the span of 26 days. An additional 2-gallons of product were removed August 14, 2007. It appears that incorporating wells EX-1 and MW-4 into the vapor extraction system has allowed more product to accumulate in the immediate vicinity of the wells and become available for extraction. This idea stems from the fact that during a previous free product removal test (conducted in September 2006), only roughly 3-gallons of product could be skimmed from the well.

As an interim means of addressing the continued presence of free product, we would like to propose the use of passive product-specific absorbant socks. These absorbant socks can be left in wells EX-1 and MW-4, which have been reported with free product in the past, until fully saturated with product and then removed and replaced as needed.

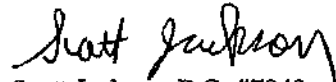
We would also like to request a meeting with you in order to discuss future remediation options as well as touch bases about some of the other current issues associated with the site. We feel that a face-to-face meeting with open dialogue would help move this investigation along. Our hope is to ensure that the interested parties are all on the same page about the different aspects of the project.

Do not hesitate to call or write with any questions, comments, or concerns. You can contact us by writing at the letterhead address or by phone at the numbers below.

Sincerely,
HerSchy Environmental, Inc.



Reijo Ratilainen
Project Geologist
phone: 559.760.0037
e-mail: ReijoRHerSchy@sti.net



Scott Jackson, P.G. #7948
Senior Project Geologist
phone: 559.641.7320
e-mail: ScottJHerSchy@sti.net



cc: Mr. Pritpaul Sappal
Mr. Hernan Gomez, Oakland Fire Services Agency
Ms. Alyce Sandbach, Deputy District Attorney



Herschy Environmental, Inc.
May 27, 2008
Mr. Paresh Khatri

Alaska Gas
Oakland, CA

APPENDIX G
Correspondence Log



erSchy Environmental, Inc.

PO Box 229 ♦ Bass Lake, CA 93604-0229 ♦ Phone: 559-641-7320 ♦ Fax: 559-641-7340

**Alaska Gasoline Company
6211 San Pablo Avenue
Oakland, California
Case #RO0000127**

Correspondence Log

Access Agreement Inquiry and Request

1126 62nd Street, Oakland Ca
Owner: City of Oakland Housing Authority
APN# 016_145501600

Notes:

1126 62nd Street, Oakland - owned by Housing Auth. of Oakland
mailing add: 1619 Harrison St. Oakland, Ca 94612
"mixed housing type"

Contacts:

Housing Dept Admin (510)238-3015
Oakland Housing Department, Real Estate Office – (510) 587-2147/3
Public Works – Environmental Department (?) (510) 238-7920
Phillip Neville, Oakland Housing Authority
pneville@oakha.org
Steve Hoppe, Oakland Housing Authority (?) (510) 587-2143
Nicole Thompson, Oakland Housing Authority – (510) 874-1500 x1686(?)
nthompson@oakha.org
Eric Johnson, Oakland Housing Authority, Assistant Deputy Director of Operations (510) 532-7192

Written Correspondence

February 1, 2007 – Access Agreement Request letter mailed February 1, 2007
November 21, 2007 – Access Agreement Request letter mailed to Ms. Marianne Foster of the City of
Oakland Housing Authority

Other Correspondence (OUTGOING)

??/??/?? - Phone call:

January 29, 2007 – Message to Mr. Steve Hoppe at City of Oakland Housing Authority regarding access
agreement request
March 7, 2007 – Phone conversation with Steve Hoppe at City of Oakland; "he'll have the appropriate
people in the department call back"

??/??/?? – E-mail:

- March 26, 2007 – E-mail Correspondence to Mr. Phil Neville of the Oakland Housing Authority requesting access to HA property for environmental work with attachments.
- March 28, 2007 – E-mail Correspondence to Ms. Nicole Thompson of the Oakland Housing Authority requesting access to HA property for environmental work with attachments.
- April 4, 2007 – E-mail Correspondence to Ms. Nicole Thomson of the Oakland Housing Authority; repeat of previous e-mail on March 28, 2007 due to incorrect address with attachments.
- June 6, 2007 – E-mail Correspondence to Ms. Nicole Thompson of the Oakland Housing Authority – follow up to April 4, 2007 requesting status update with attachments.
- June 12, 2007 – E-mail Correspondence to Ms. Marianne Foster of the Oakland Housing Authority requesting access agreement with attachments.
- June 12, 2007 – E-mail Correspondence to Ms. Marianne Foster of the Oakland Housing Authority which included the requested workplan as an attachment
- June 18, 2007 – E-mail Correspondence to Ms. Marianne Foster of the Oakland Housing Authority – Status update/follow up to request made on June 12, 2007
- November 5, 2007 – E-mail Correspondence to Ms. Marianne Foster of the Oakland Housing Authority – regarding a status update to access agreement request.
- January 18, 2008 - E-mail Correspondence to Mr. Phil Neville of the Oakland Housing Authority regarding Access Agreement Request and status of internal review.
- March 27, 2008 – E-mail Correspondence to Mr. Eric Johnson, Assistant Deputy Director of Operations, Oakland Housing authority. This correspondence is a re-iterated request for an access agreement with attachments.
- April 17, 2008 – E-mail Correspondence to Mr. Eric Johnson regarding status of access agreement request; supporting documents and request re-sent per phone conversation with Mr. Johnson stating “didn’t receive previous e-mail”

Other Correspondence (INCOMING)

- June 12, 2007 – E-mail Correspondence from Ms. Marianne Foster of the Oakland Housing Authority, confirmation of receipt of attachments, accessory request for original workplan.
- June 18, 2007 – E-mail Correspondence from Ms. Marianne Foster of the Oakland Housing Authority, reply to status update saying an internal inquiry to the real estate department had been made.
- June 25, 2007 – E-mail Correspondence from Ms. Marianne Foster of the Oakland Housing Authority, indicating a reply from the real estate department stating that the HA did not have a standard access agreement and requesting an access agreement of HerSchy.
- June 28, 2007 - E-mail Correspondence from Ms. Marianne Foster of the Oakland Housing Authority, general message saying she will be on leave for 3 weeks and to contact either Patricia Ison or her assistant Sherita Brazzel with any inquiries in her absence.
- April 17, 2008 – E-mail Correspondence from Mr. Eric Johnson of Oakland Housing Authority confirming receipt of e-mail sent April 17, 2008.

Access Agreement Inquiry and Request

"Vacant Lot" Southeast corner of Marshall Street and 62nd Street, Oakland, CA

Owner: Mr. Paul Wang

APN# # 016_145900600

Notes:

"vacant lot" add is "Marshall St." - owned by City of Oakland

mailing add: 505 14th street #609, Oakland, CA 94612

"mixed housing type"

Contacts:

Antoinette "toni" Renwick (510)238-6217

Bill Wilkens, Oak. Real Estate (510)238-6358

Mark Gomez, Supervisor of Environmental Services (510) 238-7314

Jeff Angel, City of Oakland, Real Estate Department (510)238-6158

Edwin Kawamoto, Edwin Kawamoto, (510) 238-4314

(510) 238-6860 (?)

Mr. Paul Wang, New Property Owner, (510) 547-9315

Mr. Mack McKenzie, Morgan Environmental, (510) 385-2852

- Mr. Wang's consultant for soil removal (?)

Written Correspondence

February 1, 2007 – Access Agreement Request sent to City of Oakland "To Whom it May Concern"

March 23, 2007 – Access Agreement Request Letter sent to Mr. Edwin Kawamoto of the City of Oakland

April 27, 2007 – Access Agreement Request letter mailed Mr. Wang

June 12, 2007 – Access Agreement Request letter mailed to Mr. Wang

Other Correspondence

??/??/?? - Phone call:

December 22, 2006 – Message left at (510) 238-7920 re: Access Agreement Establishment

December 29, 2006 – Correspondence with Toni Renwick

January 8, 2007 – Message left with Bill Wilkens of City of Oakland Real Estate Dept. re interest in establishing an access agreement for environmental work

January 8, 2007 – Per Jeff Angel of the City of Oakland, "City property may have data on vacant lot site"

January 8, 2007 – Call to Mark Gomez of City of Oakland, regarding previous site work at "vacant lot"

January 29, 2007 – Message left with Mark Gomez regarding access agreement request "his message said to contact Kopal Nair at (510) 238-6361 in his absence, similar msg also left"

March 7, 2007 – Message to Bill Wilkens regarding access agreement request

March 8, 2007 – Phone call with Jing F Wong re: Insurance requirements for permanent wells and for direct push work on "vacant lot" referral to Edwin Kawamoto

April 4, 2007 – Per conversation with Mr. Jeff Angel, Mr. Paul Wang is property owner and provided Mr. Wang's phone number for future correspondence

April 18, 2007 – Message left with Mr. Paul Wang regarding proposed soil borings on his property.

April 23, 2007 – Message left with Mr. Paul Wang regarding proposed soil borings on his property.

May 24, 2007 – Phone conversation with Mr. Wang regarding proposed soil borings, he would like an access agreement to review prior to doing any work.

June 12, 2007 – Phone call from Mr. Paul Wang with physical mailing address.

??/??/?? – E-mail:

January 10, 2007 – E-mail to Mark Gomez (mmgomez@oaklandnet.com) with D.P. workplan, approval from Alameda County for review of proposed work

February 28, 2007 - Meeting with Mark Gomez, City of Oakland at City office

Permanent Well Insurance Requirement Issues with the City of Oakland

- 2 permanent wells permitted and proposed for installation on Marshall Street

Correspondence

September 14, 2006 - Referral by Debra Cornwell (Oakland Risk) to Lillian Vanviedt, Driver Alliance Insurance Services. 949-660-8116. Need referral for a company that will insure the permitting for Alaska Gas encroachment permits.

September 27, 2006 - 949-660-8169, referred to Driver Alliant Bakersfield Division

September 27, 2006 - Mr Newton (Driver Alliant) says his programs don't cover gas stations.

January 17, 2007 – trip made to City office to speak with Mr. Jing Wong – Permitting Supervisor; “not available, please try tomorrow”

January 18, 2007 (11:20 AM) - Called Ms Cornwell to find out why Surety Bonds are not acceptable for issuance of Encroachment Permits.

*Note: Debra Cornwell is now Debra Grant

January 18, 2007 – trip made to City of Oakland permitting office to speak with Mr. Jing Wong regarding specifics for insurance requirements of permanent monitoring wells in City right of way.

January 19, 2007 (10:22 AM) - Mrs Grant directed me to write a letter outlining the excessive costs to our client and address it to:

Debra Grant
City of Oakland
150 Frank Ogawa Plaza, Suite 2352
Oakland, Ca 94612

January 19, 2007 – Message from Mr. Wong regarding insurance requirements, “city attorney and risk management office say ‘surety bond not ok’” please contact them for the specifics.

January 19, 2007 – Speak with Mr. Wong and he states that a Single surety bond for both wells is OK. The required bond language to come in the middle of “next week.”