ExxonMobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611
510 547 8196 Telephone
510 547 8706 Facsimile

Jennifer C. Sedlachek
Project Manager

ExxonMobil

March 15, 2010

Ms. Barbara Jakub, P.G.
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

RE: Former Exxon RAS #79374/990 San Pablo Avenue, Albany, California.

Dear Ms. Jakub:

Attached for your review and comment is a copy of the letter report entitled ***Work Plan for Soil and Groundwater Assessment,*** dated March 15, 2010, for the above-referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) of Petaluma, California, and presents information for the subject site.

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.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,

Jennifer C. Sedlachek
Project Manager

Attachment: ERI's Work Plan for Soil and Groundwater Assessment, dated March 15, 2010

cc: w/ attachment
Ms. Muriel T. Blank, Trustee, The Blank Family Trusts
Reverend Deborah Blank, Trustee, The Blank Family Trusts
Ms. Marcia Blank Kelly, The Blank Family Trusts

w/o attachment
Ms. Paula Sime, Environmental Resolutions, Inc.

VALUE, QUALITY, RESPONSE

Southern California
Northern California
Central California
Pacific Northwest
New England
Southwest
Montana
Texas

March 15, 2010
ERI 273503.W01

Ms. Jennifer C. Sedlachek
Exxon Mobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611

SUBJECT **Work Plan for Soil and Groundwater Assessment**
Former Exxon Service Station 79374
990 San Pablo Avenue
Albany, California

Alameda County Department of Environmental Health RO No. 2974

Ms. Sedlachek:

At the request of ExxonMobil Environmental Services Company (EMES), on behalf of ExxonMobil Oil Corporation, Environmental Resolutions, Inc. (ERI) prepared this work plan for the advancement of two CPT borings (CPT1 and CPT2) and the installation of six groundwater monitoring wells (MW1 through MW6) at the subject site. The purpose of the CPT borings is to evaluate the stratigraphy beneath the site, identify water-bearing sediments, and delineate the vertical extent of dissolved-phase petroleum hydrocarbons in groundwater. The purpose of the well installation is to provide ongoing monitoring points for evaluation of dissolved-phase hydrocarbon concentrations in groundwater and to define the groundwater flow direction beneath the site. This work was requested by the Alameda County Health Care Services Agency, Environmental Health Services (ACEH) in a letter dated June 30, 2008 (Appendix A).

SITE DESCRIPTION

Former Exxon Service Station 79374 is located at 990 San Pablo Avenue, on the northwestern corner of the intersection of Buchanan Street and San Pablo Avenue, Albany, California (Plate 1). The site is

currently occupied by a retail outlet for Benjamin Moore paints and painting products and associated paved asphalt driveway and parking area. The surrounding areas consist of residential and commercial properties. A Shell Service Station and an Atlantic Richfield Company Service Station (Arco) are located approximately 350 feet and 500 feet, respectively, south-southeast of the site (Plate 2).

According to City of Albany building permits issued in 1951, a service station owned by Signal Oil Company occupied the site. Humble Oil company acquired the site in approximately 1967 from Standard Oil Company of California (Chevron) rebranding the site as an Enco station. The station was rebranded as an Exxon service station in 1972. The service station was demolished in 1983; during demolition activities, one used-oil UST and four gasoline USTs were removed and the tank cavity was backfilled with sand to 90% compaction (City of Albany permit 82-0708).

ERI reviewed eight historical aerial photographs of the site and vicinity dated between September 6, 1949, and June 21, 1983. Based on these photographs, the dispenser islands were most likely located beneath the station canopy on the north side of the site and the former USTs were most likely located on the south side of the site, east of the station's service bays. The location of the former used-oil UST is not apparent. Enlargements of the aerial photographs are presented in Appendix B and the approximate locations of the former dispenser island and UST cavity are shown on Plate 3.

GEOLOGY AND HYDROGEOLOGY

The site lies at an approximate elevation of 40 feet above msl, and the local topography slopes toward the southwest. The site is located along the eastern margin of the San Francisco Bay within the East Bay Plain (Hickenbottom and Muir, 1988). The surficial deposits in the site vicinity are mapped as Holocene alluvial fan and fluvial deposits (Graymer, 2000). The site is located approximately 1,630 feet north-northwest of Cordornices Creek. The active northwest trending Hayward fault is located approximately 1½ mile northeast of the site.

The East Bay Plain is regionally divided into two major groundwater basins: the San Pablo and the San Francisco Basin. These basins are tectonic depressions that are filled primarily with a sequence of coalescing alluvial fans. The San Francisco Basin is further divided into seven sub-areas. The site is located in the Berkeley Sub-Area, which is filled primarily by alluvial deposits that range from 10 to 300 feet thick with poorly defined aquitards (CRQCB, 1999). Under natural conditions, the direction of groundwater flow in the East Bay Plain is east to west.

Assessment activities indicate that the soil beneath the site consists of clayey sandy gravel and silty to sandy clay with varying amounts of silt and sand to 21.5 feet bgs, the maximum depth investigated (EC&A, 2008). Free groundwater occurs in the sand and sandy gravel layer from approximately 8 to

12 feet bgs. During the April 2009 groundwater monitoring event conducted at the Arco Station 2035 at 1001 San Pablo Avenue, Albany, located approximately 550 feet south-southeast of the site, the groundwater flow direction was to the west with a horizontal gradient of 0.02 (Broadbent, 2009).

PREVIOUS WORK

Fueling System Activities

In 1983, one used-oil UST and four gasoline USTs were removed and the tank cavity was backfilled with sand to 90% compaction (City of Albany permit 82-0708).

Site Assessment Activities

Six exploratory borings (B1 through B6) were advanced on site in 2008 (EC&A, 2008). Two soil samples were collected from each boring at approximately 5.5 and 10.5 feet bgs. Maximum concentrations of TPHg, TPHd, and benzene were reported in the soil samples collected at 10.5 feet bgs in borings B1 and B2 at 7,200 mg/kg (B1); 1,400 mg (B1 and B2); and 13 mg/kg (B2); respectively. Grab groundwater results indicated maximum dissolved-phase TPHg, TPHd, and benzene concentrations of 77,000 µg/L (B2); 99,000 µg/L (B1); and 1,500 µg/L (B2), respectively. The laboratory reported an immiscible sheen present in the groundwater samples collected from borings B1 and B2.

PROPOSED WORK

In the June 30, 2008, letter, the ACEH requested additional assessment to define the vertical and lateral extent of petroleum hydrocarbons in soil and groundwater beneath the subject site, based on the results of EC&A's 2008 investigation. Delineation of the lateral extent of dissolved-phase hydrocarbons will likely require off-site assessment. ERI proposes to install an on-site groundwater monitoring well network to define the groundwater flow direction beneath the site prior to considering off-site assessment locations.

The proposed work consists of advancing two CPTs to approximately 40 feet bgs and installing six on-site groundwater monitoring wells (MW1 through MW6) to approximately 15 feet bgs at the locations depicted on Plate 4. The rationale for each CPT and well is described below.

CPT	Purpose
CPT1	To evaluate stratigraphy and to assess petroleum hydrocarbon concentrations in water-bearing intervals. To achieve vertical delineation of dissolved-phase hydrocarbons in the vicinity of the presumed former dispenser island and along the upgradient side of the site.
CPT2	To evaluate stratigraphy and to assess petroleum hydrocarbon concentrations in water-bearing intervals. To achieve vertical delineation of dissolved-phase hydrocarbons downgradient of the presumed former USTs and dispenser islands.

Well	Purpose
MW1	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations in the vicinity/crossgradient of the presumed former dispenser islands.
MW2	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations in the vicinity/upgradient of the presumed former USTs.
MW3	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations in the vicinity/downgradient of the presumed former USTs. To assess the presence or absence of immisible sheen observed in borings B1 and B2.
MW4	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations downgradient of the presumed former USTs.
MW5	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations downgradient of the presumed former USTs.
MW6	To provide an ongoing groundwater monitoring point for evaluation of groundwater flow direction and dissolved-phase petroleum hydrocarbon concentrations downgradient of the presumed former dispenser islands.

Pre-Field Activities

Prior to the onset of field activities, permits will be obtained from the County of Alameda Public Works Department. ERI personnel will visit the site to check for obstructions and to mark the proposed locations. Underground Service Alert will be notified at least 48 hours prior to the onset of field activities. Prior to drilling, the locations will be excavated with hand tools or vacuum excavation equipment in accordance with EMES' subsurface clearance protocol.

Cone Penetration Tests

One CPT will be advanced on the upgradient side of the property, in the vicinity of the presumed dispenser island location and one CPT will be advanced on the downgradient side of property, downgradient of the former USTs. Based on groundwater contour maps provided by the consultant for

property is assumed to be upgradient and the west side of the property is assumed to be the downgradient edge with groundwater flowing towards the west. For collection of depth-discrete groundwater samples, ERI will:

- Obtain the services of a licensed well driller and observe the advancement of two CPT borings using CPT equipment. The CPT borings will be advanced to a maximum depth of approximately 40 feet bgs.

- Examine the CPT logs and identify the intervals which contain groundwater.

- Collect depth-discrete grab groundwater samples from water-bearing intervals using a Hydropunch® (or similar) sampling device in an adjacent borehole.

- Fill the boreholes upon completion of sampling with cement/bentonite grout and refinish the surface to match the surrounding ground conditions.

Field protocols for advancing CPTs and collecting groundwater samples are provided in Appendix C.

Well Installation Activities

The proposed wells will be drilled in the vicinity of the original borings using hollow-stem auger equipment. Soil from the well borings will be sampled continuously for stratigraphic evaluation, field screening using a PID, and possible laboratory analysis.

The well borings will be advanced to approximately 15 feet bgs. Wells MW2 and MW3, located in the vicinity of borings B1 and B2, respectively, will be constructed using 4-inch diameter, Schedule 40 PVC casings, screened from approximately 6 to 13 feet bgs. Wells MW1 and MW4 through MW6 will be constructed using 2-inch diameter, Schedule 40 PVC casings.

During EC&A's initial site assessment in 2008, groundwater was encountered at depths ranging between 8 and 12 feet bgs. Depth to water measurements at the nearby ARCO Service Station at 1001 San Pablo Avenue ranged between approximately 7 and 12 feet bgs in April 2009 (Broadbent, 2009). The proposed wells at the subject site will be screened in the shallowest aquifer and immiscible sheen has been reported in grab groundwater samples during previous assessment. In an effort to ensure the well screens span the expected range of groundwater depths, ERI does not recommend well screen intervals of less than 5 feet as requested by the ACEH.

Groundwater monitoring wells will be developed using surge and pump techniques as described in the field protocol in Appendix C and surveyed in accordance with Assembly Bill (AB) 2886 requirements.

The procedures for drilling, decontamination, well construction, and well development are described in the field protocol contained in Appendix C. The fieldwork will be conducted under the advisement of a State of California professional geologist and in accordance with applicable regulatory guidelines.

Laboratory Analyses

Select soil and groundwater samples will be submitted for analysis to an EMES-approved, state-certified analytical laboratory. The samples will be analyzed for TPHg, TPHd, and TPHmo by EPA Method 8015B and for BTEX, fuel oxygenates (including MTBE, ETBE, DIPE, TAME, and TBA), and lead scavengers (including 1,2-DCA and EDB) by EPA Method 8260B.

Waste Management Plan

The soil and decontamination water generated during drilling activities will be temporarily stored on site in DOT-approved 55-gallon drums. Soil cuttings and decontamination water will be transported to an EMES-approved facility for disposal. Copies of the waste manifests for the proper disposal of soil and water will be included in the report.

Site Safety Plan

Fieldwork will be performed in accordance with the site-specific safety plan.

Report

After completion of the proposed field activities and one quarterly groundwater monitoring event, a report summarizing field and laboratory procedures, boring logs, and laboratory results will be submitted to EMES and the ACEH. The report will be signed by a State of California professional geologist.

CONTACT INFORMATION

The responsible party contact is Ms. Jennifer C. Sedlachek, ExxonMobil Environmental Services Company, 4096 Piedmont Avenue #194, Oakland, California 94611. The consultant contact is Ms. Paula Sime, Environmental Resolutions, Inc., 601 North McDowell Boulevard, Petaluma, California

94954. The agency contact is Ms. Barbara Jakub, Alameda County Health Care Services Agency, Environmental Health Services, 1131 Harbor Bay Parkway, Suite 250, Alameda, California, 94502-6577.

LIMITATIONS

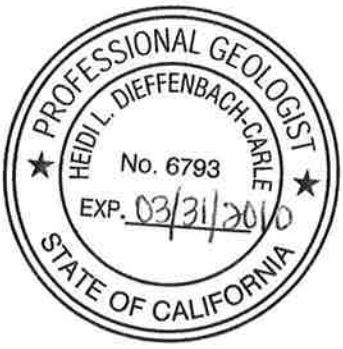
For any documents cited that were not generated by ERI, the data taken from those documents is used "as is" and is assumed to be accurate. ERI does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document was prepared in accordance with generally accepted standards of environmental, geological and engineering practices in California at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

For any questions concerning the content of this work plan, please contact Ms. Paula Sime at (707) 766-2000.

Sincerely,

Environmental Resolutions, Inc.



Paula Sime

Senior Project Manager

Heidi L. Dieffenbach-Carle

P.G. 6793

cc: Ms. Barbara Jakub, Alameda County Health Care Services Agency, Environmental Health Services, 1131 Harbor Bay Parkway, Suite 250, Alameda, California, 94502-6577

Ms. Muriel T. Blank, Trustee, The Blank Family Trusts, 1164 Solano Avenue, #406, Albany, California, 94706

Reverend Deborah Blank, Trustee, The Blank Family Trusts, 1563 Solano Avenue, #344, Berkeley, California, 94707

Ms. Marcia Blank, Trustee, The Blank Family Trusts, 641 SW Morningside Road, Topeka, Kansas, 66606

Enclosures:

References
Acronym List

Plate 1	Site Vicinity Map
Plate 2	Local Area Map
Plate 3	Generalized Site Plan
Plate 4	Proposed Well and CPT Locations

Appendix A	Correspondence
Appendix B	Historical Aerial Photographs
Appendix C	Field Protocol

REFERENCES

Broadbent & Associates, Inc. (Broadbent). July 15, 2009. *Second Quarter 2009 Semi-Annual Ground-Water Monitoring Report, Atlantic Richfield Company Station #2035, 1001 San Pablo Avenue, Albany, California.* Broadbent Project No. 06-88-610

California Regional Water Quality Control Board San Francisco Bay Region Groundwater Committee (CRWQCB). June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA.*

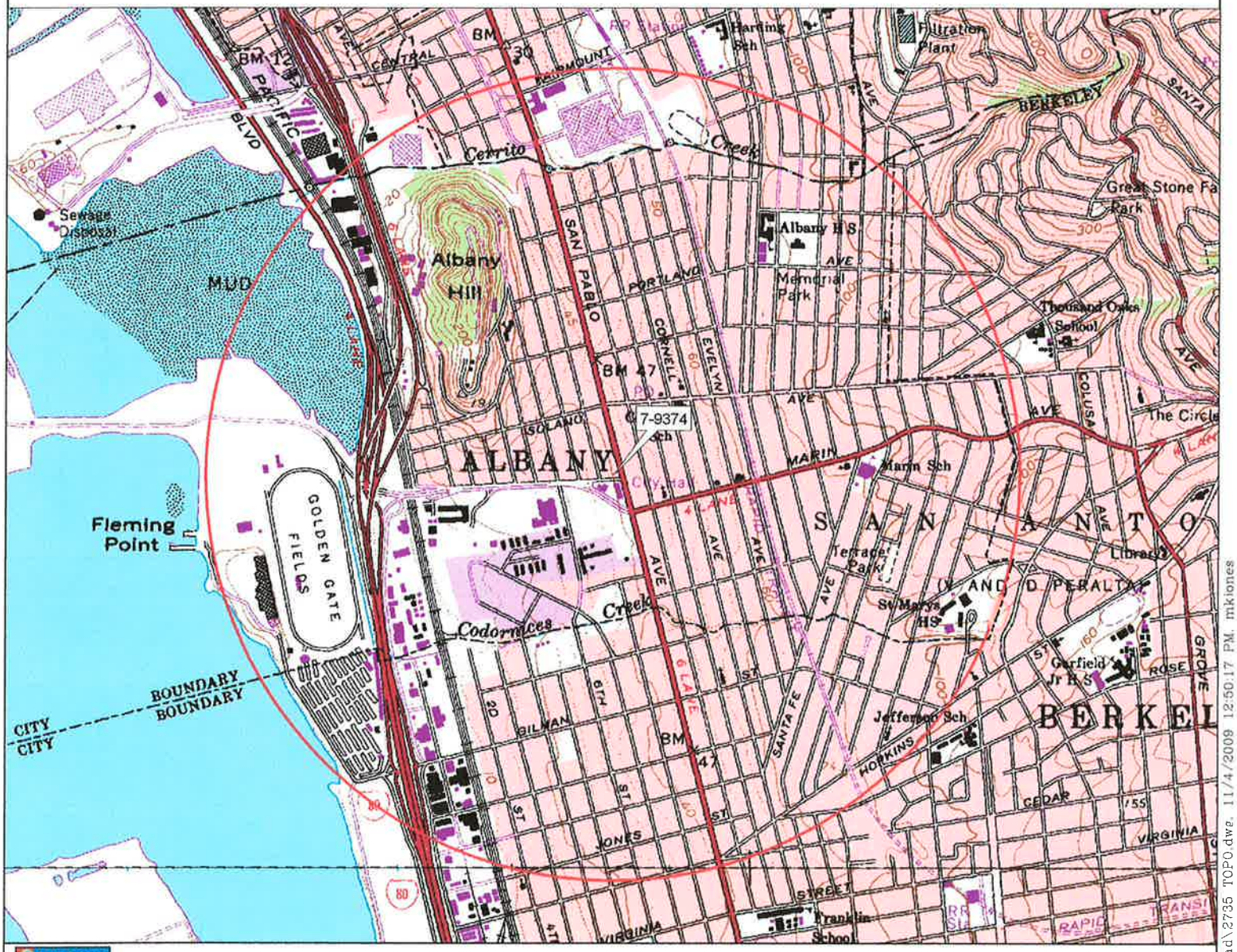
Edd Clark & Associates (EC&A). January 31, 2008. *Report of Phase II Environmental Assessment, 990 San Pablo Avenue, Albany, California 94706.* EC&A Project No 0589,002.07.

Graymer, R.W. 2000. Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California. USGS, Miscellaneous Field Studies MF-2342.

Hickenbottom, Kelvin and Muir, Kenneth S. June 1988. *Geohydrogeology and Groundwater Quality Overview of the East Bay Plain Area, Alameda County, CA.* Alameda County Flood Control and Water Conservation District. 83p.

ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



FN 2735 TOPO

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map provided by DeLorme 3-D TopoQuads

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SITE VICINITY MAP

FORMER EXXON SERVICE STATION 79374
990 San Pablo Avenue
Albany, California

PROJECT NO.
2735
PLATE
1

APPROXIMATE SCALE

0 80 160
METERS

FN 2735 09 W01 AERIAL_SP

1,500-Meter Radius

N

LEGEND

WELLS (SPECIAL USE OR MUNICIPAL)

There are no public wells within a 1,500-meter radius.

LOCAL AREA MAP

FORMER EXXON SERVICE STATION 79374
990 San Pablo Avenue
Albany, California

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PROJECT NO.
2735
PLATE
2

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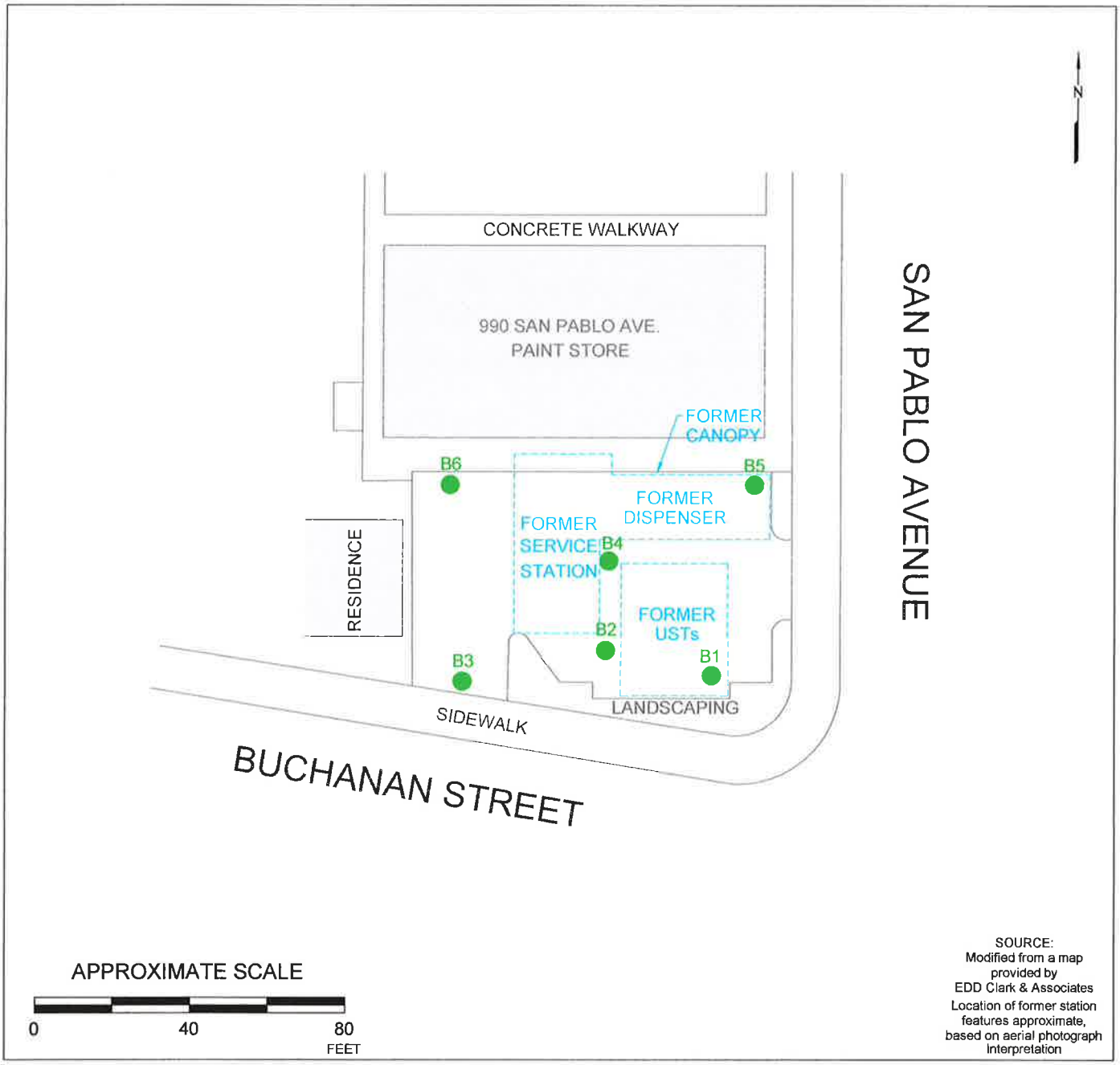

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EXPLANATION

B6
● Borings

GENERALIZED SITE PLAN

FORMER EXXON SERVICE STATION 79374
990 San Pablo Avenue
Albany, California

PROJECT NO.
2735
PLATE
3

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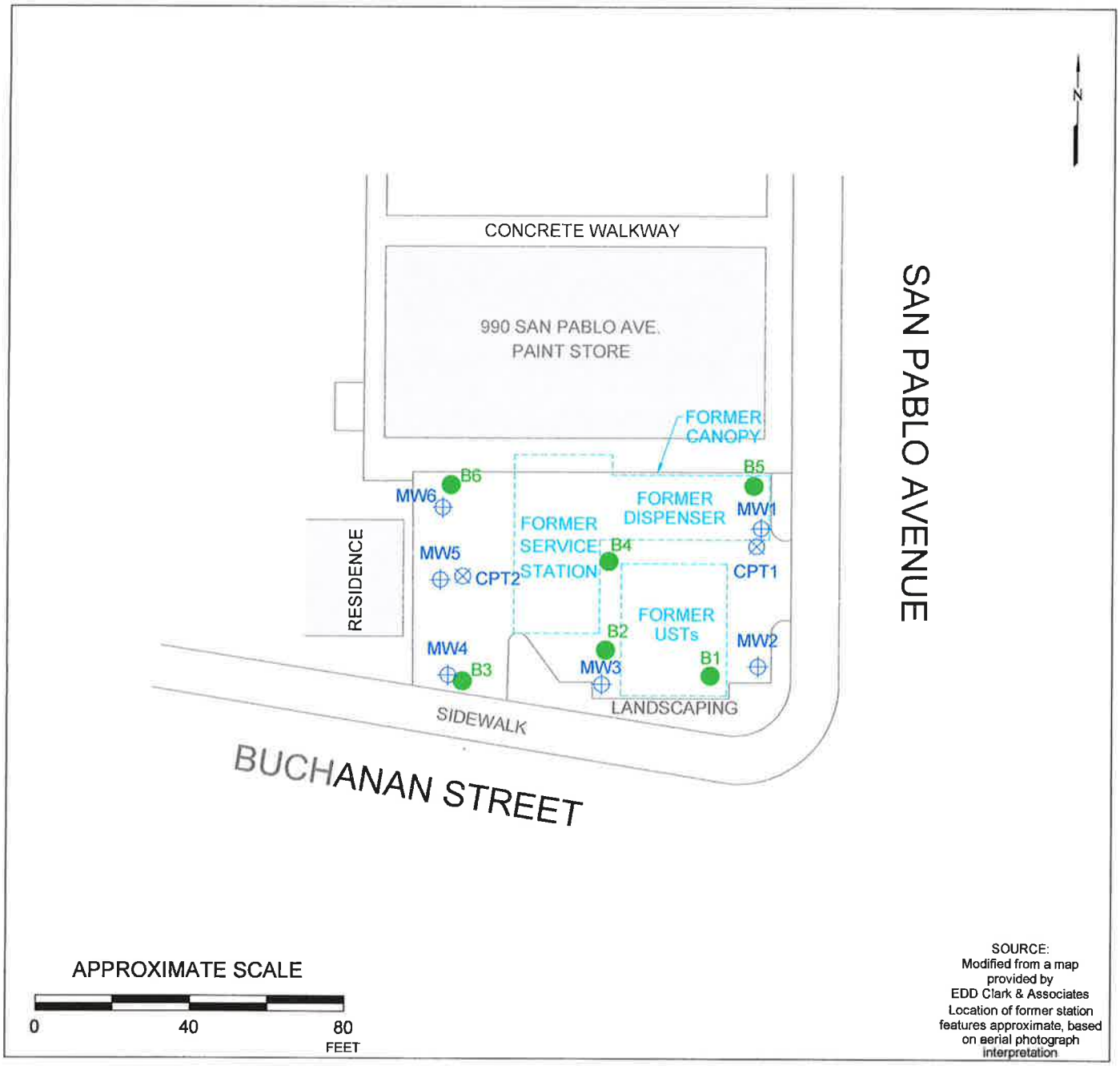

FN 2735 09 W01 PROP WELLS_SP

EXPLANATION

B6
● Borings

MW6
⊕ Proposed Groundwater Monitoring Well

CPT2
⊠ Proposed Cone Penetration Test Boring

PROPOSED WELL AND CPT LOCATIONS

FORMER EXXON SERVICE STATION 79374
990 San Pablo Avenue
Albany, California

PROJECT NO.
2735
PLATE
4

ERI
VALUE, QUALITY, RESPONSE

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APPENDIX A

CORRESPONDENCE

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

June 30, 2008

Ms. Jennifer Sedlachek (via electronic mail)
ExxonMobil
4096 Piedmont Ave., #194
Oakland, CA 94611

Mrs. Muriel Blank
Blank Family Trust
1164 Solano Ave., #406
Albany, CA 94706

Subject: Fuel Leak Case No. RO00002974 and Geotracker Global ID T0619716673, Exxon, 990 San Pablo Ave., Albany, CA 94706

Dear Ms. Sedlachek and Mrs. Blank:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the January 31, 2008 *Report of Phase II Environmental Site Assessment* that was submitted by Edd Clark & Associates, Inc. The assessment report recommends preparing a work plan for additional soil and groundwater investigation at the site, installing wells and performing a sensitive receptor survey. This report indicates that maximum concentrations of 99,000 micrograms per liter (µg/L) total petroleum hydrocarbons as diesel (TPHd) in B-1, 77,000 µg/L total petroleum hydrocarbons as gasoline (TPHg) in B-2 and 1,500 µg/l benzene in B-2 are present in groundwater at your site. Free product was also noted in boring in B-1. The maximum TPHd concentration in soil [7,200 milligrams per kilogram (mg/Kg)] was detected in B-1 at a depth of 10.5 feet below ground surface (bgs). Maximum TPHg concentrations of 1,400 mg/Kg were detected in borings B-1 and B-2 from 10.5 ft bgs and the maximum benzene concentration (13 mg/kg) was detected in B-2 from 10.5 feet bgs.

ACEH concurs that additional assessment needs to be performed at the site. Please address the following technical comments, perform the requested work, and submit the work plan requested below.

TECHNICAL COMMENTS

1. **Groundwater Characterization** –The Phase II report indicates that free product is present at the site and that petroleum hydrocarbons and volatile organic compounds are present across the entire site. The lateral and vertical extent of the groundwater plume is

not defined. An expedited site assessment should be performed at the site using methods such as CPT, MIP or other continuous logging method to evaluate the extent of petroleum hydrocarbons. After the extent of contamination is determined, a monitoring well network can be installed using cluster wells or multi-chamber wells with screen lengths of 2 feet or less and sand packs of less than five feet.

2. **Source Area Soil Characterization** – Soil samples collected at the site indicate that the lateral and vertical extent of the contamination is undefined. The expedited site assessment requested should include sampling to define the lateral and vertical extent of petroleum hydrocarbons in the source area(s). Also please provide the tank, product piping and dispenser locations on the figures you submit.

3. **Preferential Pathway Evaluation Survey.** 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 Soil and Water Investigation (SWI) 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

   Included in your Phase II report is a map with some utility lines on it. No flow directions or depths are presented on the map, nor is there an evaluation of whether these provide a pathway for migration of free product and other contaminants that could migrate from your site. 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, depth, and flow direction of all utility lines and trenches within and near the site and plume areas(s) as part of your study.

   b. Well Survey

   As recommended by your consultants, please proceed with a well survey as part of your preferential pathway evaluation. The preferential pathway study includes 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. Please submit an evaluation of whether there are any potential impacts to wells in the vicinity of the site in the work plan requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Barbara Jakub), according to the following schedule:

- **September 22, 2008** –Work Plan and preferential pathway evaluation.

This report is 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

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to 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 Instructions." 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. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all 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 monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

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) 639-1287 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,

Barbara J. Jakub, P.G.
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Ms. Etta Jon VandenBosch, Edd Clark & Associates, Inc., P.O. Box 339, Rohnert Park, CA 94927, (via electronic mail, ejv@sonic.net)
Mrs. Marcia B. Kelly, 641 SW Morningside Rd., Topeka, KS 66615 (via electronic mail - marciabkelly@earthlink.net)
Rev. Deborah Blank, 1563 Solano Ave. #344, Berkeley, CA 94707 (via electronic mail- miracoli@earthlink.net)
Donna Drogos, ACEH (Sent via electronic mail)
Barbara Jakub, ACEH

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://alcoftp1.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)

APPENDIX B

HISTORICAL AERIAL PHOTOGRAPHS

06/21/83

06/22/81

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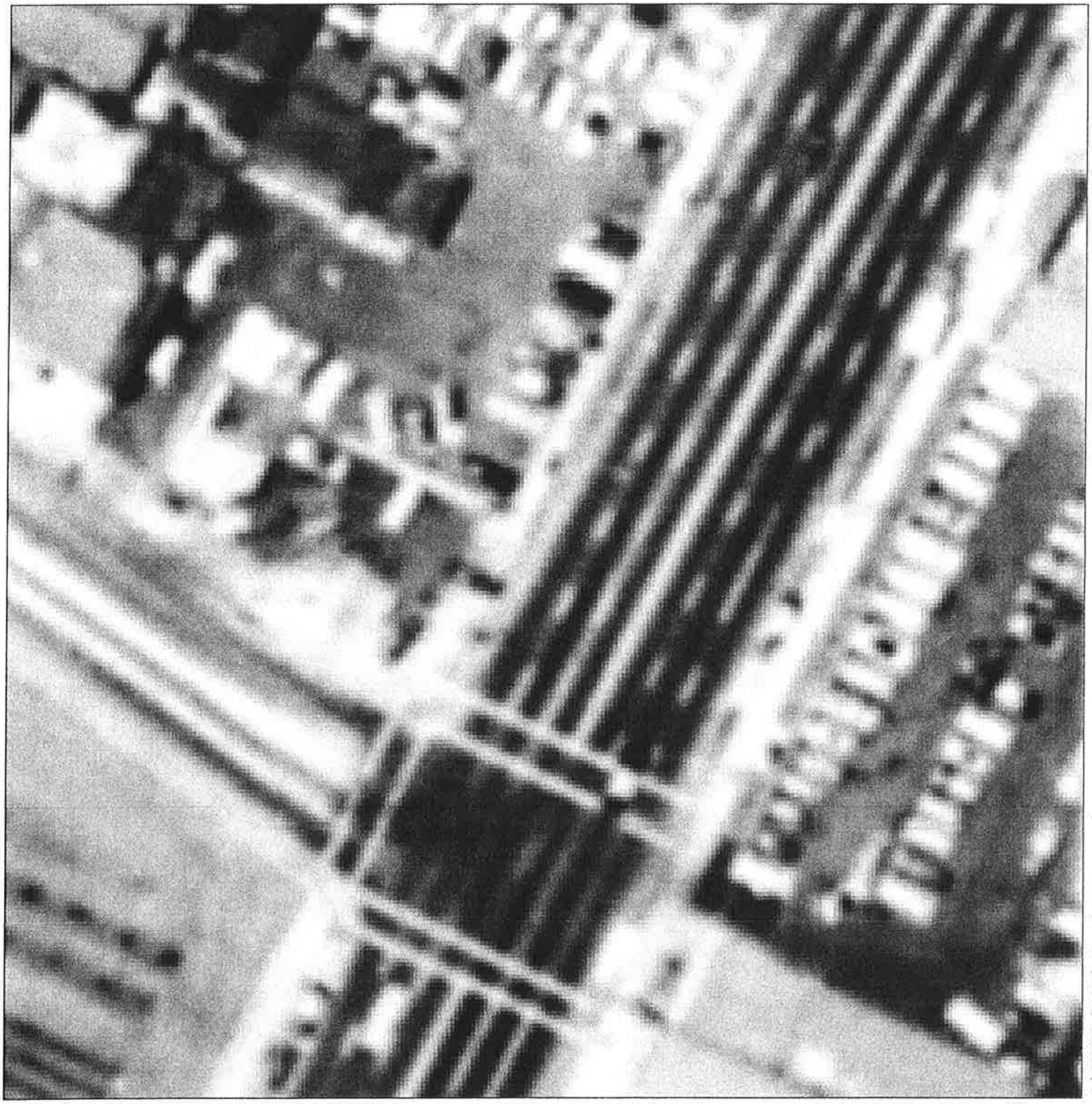

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09/061/49

APPENDIX C

FIELD PROTOCOL

Environmental Resolutions, Inc.
Soil Boring and Well Installation
Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, ERI obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. ERI marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

Drilling and Soil Sampling Procedures

ERI contracts a licensed driller to advance the boring and collect soil samples. The specific drilling method (e.g., hollow-stem auger, direct push method, or sonic drilling), sampling method [e.g., core barrel or California-modified split spoon sampler (CMSSS)] and sampling depths are documented on the boring log and may be specified in a work plan. Soil samples are typically collected at the capillary fringe and at 5-foot intervals to the total depth of the boring. To determine the depth of the capillary fringe prior to drilling, the static groundwater level is measured with a water level indicator in the closest monitoring well to the boring location, if available.

The borehole is advanced to just above the desired sampling depth. For CMSSSs, the sampler is placed inside the auger and driven to a depth of 18 inches past the bit of the auger. The sampler is driven into the soil with a standard 140-pound hammer repeatedly dropped from a height of 30 inches onto the sampler. The number of blows required to drive the sampler each 6-inch increment is recorded on the boring log. For core samplers (e.g., direct push), the core is driven 18 inches using the rig apparatus.

Soil samples are preserved in the metal or plastic sleeve used with the CMSSS or core sampler, in glass jars or other manner required by the local regulatory agency (e.g., Environmental Protection Agency Method 5035). Sleeves are removed from the sample barrel, and the lowermost sample sleeve is immediately sealed with Teflon™ tape, capped, labeled, placed in a cooler chilled to 4° Celsius and transported to a state-certified laboratory. The samples are transferred under chain-of-custody (COC) protocol.

Field Screening Procedures

ERI places the soil from the middle of the sampling interval into a plastic re-sealable bag. The bag is placed away from direct sunlight for a period of time which allows volatilization of chemical constituents, after which the tip of a photo-ionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The PID measurement is recorded on the boring log. At a minimum, the PID or other device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. ERI trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, which is included in the final report.

Air Monitoring Procedures

ERI performs a field evaluation for volatile hydrocarbon concentrations in the breathing zone using a calibrated photo-ionization detector or lower explosive level meter.

Groundwater Sampling

A groundwater sample, if desired, is collected from the boring by using Hydropunch™ sampling technology or installing a well in the borehole. In the case of using Hydropunch™ technology, after collecting the capillary fringe soil sample, the boring is advanced to the top of the soil/groundwater interface and a sampling probe is pushed to approximately 2 feet below the top of the static water level. The probe is opened by partially withdrawing it and thereby exposing the screen. A new or decontaminated bailer is used to collect a water sample from the probe. The water sample is then emptied into laboratory-supplied containers constructed of the correct material and with the correct volume and preservative to comply with the proposed laboratory test. The container is slowly filled with the retrieved water sample until no headspace remains and then promptly sealed with a Teflon-lined cap, checked for the presence of bubbles, labeled, entered onto a COC record and placed in chilled storage at 4° Celsius. Laboratory-supplied trip blanks accompany the water samples as a quality assurance/quality control procedure. Equipment blanks may be collected as required. The samples are kept in chilled storage and transported under COC protocol to a client-approved, state-certified laboratory for analysis.

Backfilling of Soil Boring

If a well is not installed, the boring is backfilled from total depth to approximately 5 feet below ground surface (bgs) with either neat cement or bentonite grout using a tremie pipe and either the boring is backfilled from 5 feet bgs to approximately 1 foot bgs with hydrated bentonite chips or backfill is continued to just below grade with neat cement grout. The borehole is completed to surface grade with material that best matches existing surface conditions and meets local agency requirements. Site-specific backfilling details are shown on the respective boring log.

Well Construction

A well (if constructed) is completed using materials documented on the boring log or specified in a work plan. The well is constructed with slotted casing across the desired groundwater sampling depth(s) and completed with blank casing to within 6 inches of surface grade. No further construction is conducted on temporary wells. For permanent wells, the annular space of the well is backfilled with Monterey sand from the total depth to approximately 2 feet above the top of the screened casing. A hydrated granular bentonite seal is placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to the desired depth using a tremie pipe. The well may be completed to surface grade with a 1-foot thick concrete pad. A traffic-rated well vault and locking cap for the well casing may be installed to protect against surface-water infiltration and unauthorized entry. Site-specific well construction details including type of well, well depth, casing diameter, slot size, length of screen interval and sand size are documented on the boring log or specified in the work plan.

Well Development and Sampling

If a permanent groundwater monitoring well is installed, the grout is allowed to cure a minimum of 48 hours before development. ERI personnel or a contracted driller use a submersible pump or surge block to develop the newly installed well. Prior to development, the pump is decontaminated by allowing it to run and re-circulate while immersed in a non-phosphate solution followed by successive immersions in potable water and de-ionized water baths. The well is developed until sufficient well casing volumes are removed so that turbidity is within allowable limits and pH, conductivity and temperature levels stabilize in the purge water. The volume of groundwater extracted is recorded on a log.

Following development, groundwater within the well is allowed to recharge until at least 80% of the drawdown is recovered. A new or decontaminated bailer is slowly lowered past the air/water interface in the well, and a water sample is collected and checked for the presence of non-aqueous phase liquid, sheen or emulsions. The water sample is then emptied into laboratory-supplied containers as discussed above.

Surveying

If required, wells are surveyed by a licensed land surveyor relative to an established benchmark of known elevation above mean sea level to an accuracy of +/- 0.01 foot. The casing is notched or marked on one side to identify a consistent surveying and measuring point.

Decontamination Procedures

ERI or the contracted driller decontaminates soil and water sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

Waste Treatment and Soil Disposal

Soil cuttings generated from the drilling or sampling are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination fluids and purge water from well development and sampling activities, if conducted, are stored on site in labeled, regulatory-approved storage containers. Fluids are subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

Cone Penetration Testing Procedure (CPT)

Gregg Drilling carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*. The soundings were conducted using a 20 ton capacity cone with a tip area of 10 cm^2 and a friction sleeve area of 150 cm^2. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.80.

The cone takes measurements of cone bearing (q_c), sleeve friction (f_s) and penetration pore water pressure (u_2) at 5-cm intervals during penetration to provide a nearly continuous hydrogeologic log. CPT data reduction and interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored on disk for further analysis and reference. All CPT soundings are performed in accordance with revised (2002) ASTM standards (D 5778-95).

The cone also contains a porous filter element located directly behind the cone tip (u_2), *Figure CPT*. It consists of porous plastic and is 5.0mm thick. The filter element is used to obtain penetration pore pressure as the cone is advanced as well as Pore Pressure Dissipation Tests (PPDT's) during appropriate pauses in penetration. It should be noted that prior to penetration, the element is fully saturated with silicon oil under vacuum pressure to ensure accurate and fast dissipation.

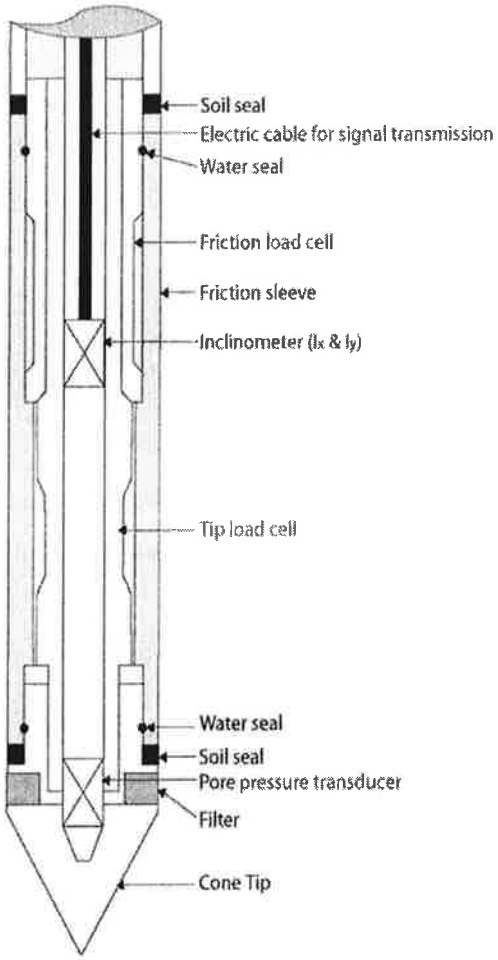


Figure CPT

When the soundings are complete, the test holes are grouted using a Gregg In Situ support rig. The grouting procedures generally consist of pushing a hollow CPT rod with a "knock out" plug to the termination depth of the test hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.

Groundwater Sampling (GWS)

Gregg Drilling conducts groundwater sampling using a Hydropunch® type groundwater sampler, *Figure GWS*. The groundwater sampler has a retrievable stainless steel or disposable PVC screen with steel drop off tip. This allows for samples to be taken at multiple depth intervals within the same sounding location. In areas of slower water recharge, provisions may be made to set temporary PVC well screens during sampling to allow the drill rig to advance to the next sample location while the groundwater is allowed to infiltrate.

The groundwater sampler operates by advancing 1 ¾ inch hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small diameter bailer (approximately ½ or ¾ inch) is lowered through the push rods into the screen section for sample collection. The number of downhole trips with the bailer and time necessary to complete the sample collection at each depth interval is a function of sampling protocols, volume requirements, and the yield characteristics and storage capacity of the formation. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event.

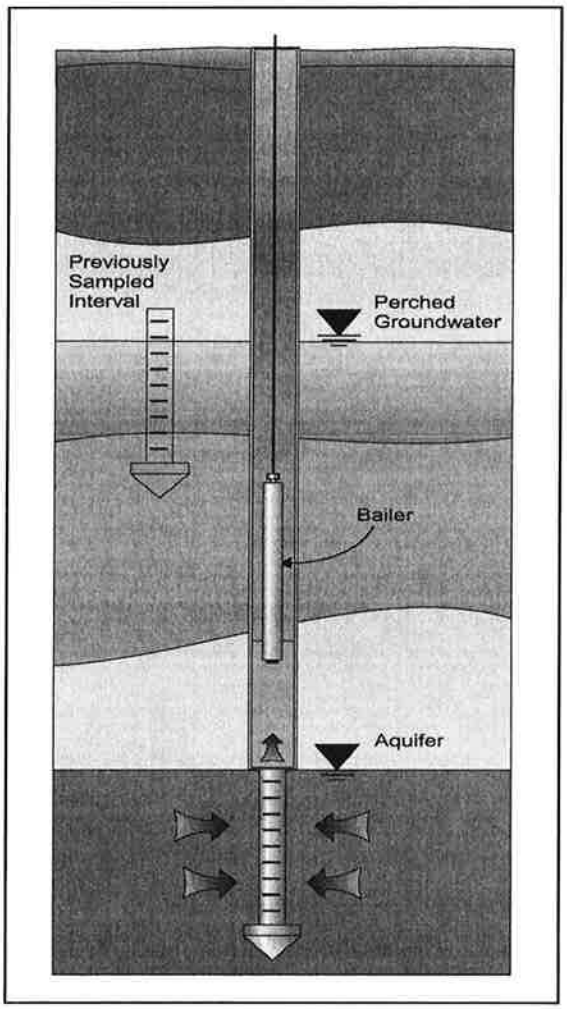


Figure GWS

For a detailed reference on direct push groundwater sampling, refer to Zemo et. al., 1992.

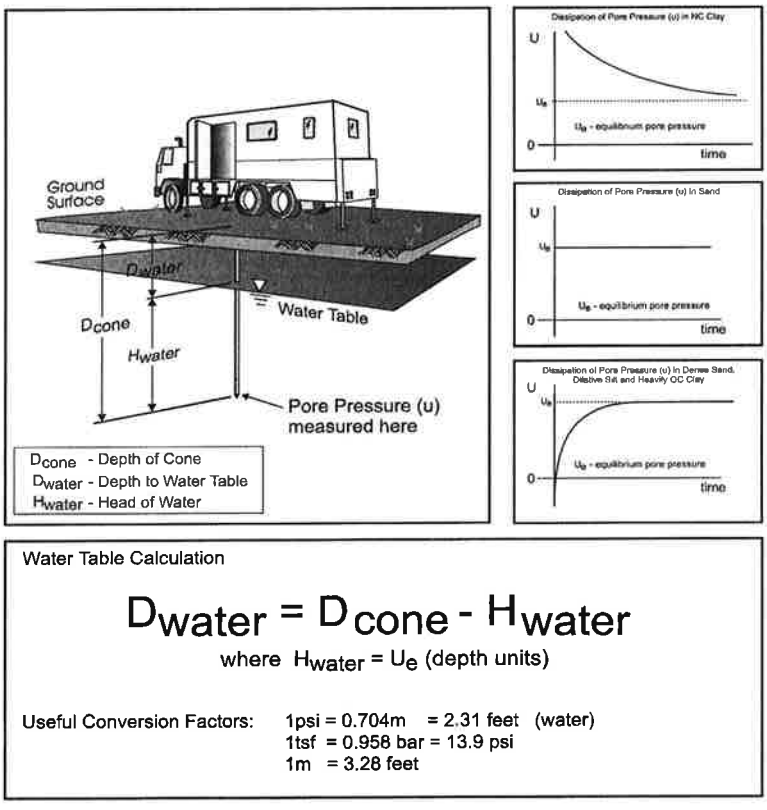
Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals measured hydrostatic water pressures and determined the approximate depth of the ground water table. A PPDT is conducted when the cone is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (u) with time is measured behind the tip of the cone and recorded by a computer system.
Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until such time as there is no variation in pore pressure with time, *Figure PPDT*. This time is commonly referred to as t_{100}, the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992.



Water Table Calculation

$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors: 1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

Figure PPDT