

**TAB 11**

# Delaware

PAGE 1

*The First State*

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF INCORPORATION OF "AMINOIL MARKETING, INC.", FILED IN THIS OFFICE ON THE SIXTH DAY OF JANUARY, A.D. 1960, AT 10 O'CLOCK A.M.



0546620 8100

070356032

*Harriet Smith Windsor*

Harriet Smith Windsor, Secretary of State

AUTHENTICATION: 5537730

DATE: 03-26-07

AMINOIL, INCORPORATED

\*\*\*\*\*

*546620  
178893*

CERTIFICATE  
OF  
INCORPORATION

RECEIVED & FILED

JAN 6 1960

*George J. Schuch*  
SECRETARY OF STATE

\*\*\*\*\*

Organized under the laws of the  
STATE OF DELAWARE

\*\*\*\*\*

CERTIFICATE OF INCORPORATION

OF

AMINOIL, INCORPORATED

\* \* \* \* \*

FIRST: The name of the corporation is  
AMINOIL, INCORPORATED.

SECOND: Its principal office in the State of  
Delaware is located at No. 100 West Tenth Street, in the  
City of Wilmington, County of New Castle. The name and  
address of its resident agent is The Corporation Trust  
Company, No. 100 West Tenth Street, Wilmington, Delaware.

THIRD: The nature of the business, or objects  
or purposes to be transacted, promoted or carried on are:  
(a) To carry on the business of buying, selling,  
or otherwise acquiring, taking, owning, holding, developing,  
leasing, managing, manufacturing, importing and exporting,  
utilizing, marketing, trading, dealing in, and otherwise  
turning to account, any and all kinds and grades of oil and  
gas, petroleum, asphalt, bitumen and bituminous substances  
of all kinds, carbon and hydrocarbon products, and any and  
all elements, constituents, products, by-products, compounds,  
blends and combinations thereof;

(b) To purchase, take, hold, own, lease, exchange or otherwise acquire, and to develop, sell, mortgage, let and deal in gas-bearing, oil-bearing and other mineral-bearing properties, leases, mines, wells and rights and any and all interests whatsoever therein or thereto, and to engage in the business of producing, mining and selling gas, oil and other minerals;

(c) To purchase, obtain by contract or concession, or otherwise acquire, take, hold, own, develop, explore, exploit, improve, operate, lease, enjoy, control, manage, or otherwise turn to account, mortgage, grant, sell, exchange, deal in, convey or otherwise dispose of, any and all lands, real estate, leases, concessions, licenses, immunities, powers, privileges, grants, rights, land patents, franchises, deposits, wells, mines, quarries, locations, claims, easements, tenements, hereditaments and interest, of every description and nature whatsoever;

(d) In connection with and incidental to any of the foregoing, to purchase, or otherwise acquire, take, own, hold, mortgage, pledge, create liens upon, convey, sell, lease, enjoy, or otherwise turn to account, assign and transfer, and to invest, trade and deal in goods, wares and merchandise, and real and personal property, and to exercise any and all powers connected with or relating to each and every of the foregoing businesses;

(e) To construct, build, purchase, lease, or otherwise acquire, take, own, hold, equip, improve, develop, maintain, manage, control, operate, mortgage, create liens upon, deal in, and otherwise dispose of and turn to account, any and all kinds of plants, works, factories, buildings, structures, stores, storehouses, warehouses, houses, extracting plants, water works, and plants, tanks, reservoirs,

containers, pumps, stills, condensers, absorbers, tubes, engines, boilers, turbines, generators, converters, machines and machinery of all kinds, electrical and otherwise, switchboards, meters, and all kinds of measuring devices, tools, implements, equipment apparatus and things or property real or personal, of every kind and description, cars, tank cars, tanks, pipe lines, transmission lines, distribution lines and plants, mains, pipes, conduits, ducts, services, pumping and compressing stations, terminals, storage plants, and equipment systems, vehicles, however propelled, ships, docks, boats, barges, floats, vessels and craft of any and all kinds, however operated, or propelled, docks, wharves, drydocks, repair shops, elevators, piers and any and all facilities, connections, installations, appliances, apparatus, appurtenances, things or property, real and personal of every kind and description, connected with, incidental to, necessary, suitable, useful, convenient or appertaining to the producing, drilling for, mining, manufacturing, buying, acquiring, securing, transporting, refining, reducing, condensing, evaporating, vaporizing, blending, analyzing, compressing, combining, mixing, marketing, utilizing, dealing in, storing, or otherwise disposing of and turning to account, oil of any and all kinds and grades, gas, either natural or artificial, gasoline, naphtha, alcohol, benzine, kerosene, carbon and hydrocarbon products, nitrate, petroleum, asphalt, bitumen and bitumi substances of all kinds, and the elements, constituents, products and by-products, mixtures, combinations and blends thereof, and for any of the purposes enumerated in this certificate;

(f) To apply for, obtain, register, purchase, lease, acquire, secure, own, hold, use, operate, contract or negotiate for, take licenses or other rights in respect of, sell, transfer, grant licenses and rights in respect of, manufacture under, introduce, sell, assign, collect the royalties on, mortgage, pledge, create liens upon, or otherwise dispose of, deal in and turn in and turn to account letters patent, patents, patent rights, patents applied for or to be applied for, trade marks, trade names and symbols, distinction marks and indications of origin or ownership, copyrights, syndicate rights, inventions, discoveries, devices, machines, improvements, processes, data, formulae of any and all kinds granted by or recognized under or pursuant to the laws of the United States of America, or of any other country or countries whatsoever;

(g) To acquire all or any part of the good will, rights, property and business of any person, firm association, heretofore or hereafter engaged in any business similar to the business of this corporation, and to pay for the same in cash or in stock or bonds of this corporation or otherwise, and to hold, utilize, enjoy, and in any manner dispose of the whole or any part of the rights and property so acquired, and to assume in connection therewith any liabilities of any such person, firm, association or corporation, and to conduct in any lawful manner and in any country, state or locality herein enumerated, the whole or any part of the business thus acquired, provided such business is within the authorization of the General Corporation Laws of the State of Delaware;

(h) To purchase, own, hold, sell, assign, transfer, mortgage, pledge, create liens upon, or otherwise dispose of,

so far as may be done under the laws of the State of Delaware, any of the shares of the capital stock of, or any bonds, debentures, notes, securities or other evidences of indebtedness, created, issued or incurred by any public, municipal, quasi-public or private corporations or associations wherever organized or created, and as owner thereof to exercise all rights, powers and privileges of ownership, including the right to vote upon any stock thus owned; and to aid in any manner which shall be lawful any corporation or association of which any bonds, stocks, or other securities or evidences of indebtedness shall be held by this corporation, and to do any acts and things permitted by law and designed to protect, preserve, improve or enhance the value of such bonds, stocks, or other securities or evidences of indebtedness;

(i) To have one or more offices and to carry on any and all of its business and operations without restriction or limit as to amount, either within or without the State of Delaware, in the other states, the District of Columbia, the Territories, colonies and dependencies of the United States of America, and in all or any foreign countries or in any part of the world;

(j) To do all and everything necessary, suitable and proper for the accomplishment of any of the purposes or attainment of any of the objects or exercises of any of the powers herein set forth, whether herein specified or not, either alone or in connection with other firms, individuals, or corporations, both in this State and throughout the United States and elsewhere, and to do any other act or acts, thing or things incidental or appurtenant to or growing out

of or connected with said business or powers or any part thereof, if not inconsistent with the laws under which this corporation is organized;

(k) It is declared that the objects and powers specified in the various paragraphs contained in this clause shall be in nowise limited or restricted by reference to or inference from the terms of any other of the paragraphs of this or any other clause of this Certificate of Incorporation.

FOURTH: The total number of shares of stock which the corporation shall have the authority to issue is Two Thousand (2,000) shares; all of such shares shall be without par value.

The pre-emptive rights of stockholders to purchase proportionate shares of any and all offerings of additional stock or other equity securities shall not be denied or abridged. Except upon unanimous consent of the stockholders, no stock or other equity security shall be issued in payment for property, services or for other consideration which would deny the stockholders the right to subscribe for their proportionate part thereof on equal terms.

FIFTH: The minimum amount of capital with which the corporation will commence business is Five Thousand Dollars (\$5,000.00).

SIXTH: The names and places of residence of the incorporators are as follows:

<u>NAMES</u>	<u>RESIDENCES</u>
R. W. Foster	Wilmington, Delaware
J. A. Spoonmaker	Wilmington, Delaware
A. D. Atwell	Wilmington, Delaware

SEVENTH: The corporation is to have perpetual existence.

EIGHTH: The private property of the stockholders shall not be subject to the payment of corporate debts to any extent whatever.

NINTH: The number of Directors of the corporation shall be specified in the by-laws, and such number may from time to time be increased or decreased in such manner as may be prescribed in the by-laws, provided the number of Directors of the corporation shall not be less than three (3). Directors and officers need not be stockholders. In case of any increase in the number of Directors, the additional Directors may be elected by the Board of Directors to hold office until the next annual meeting of the stockholders and until their successors are elected and qualified. In case of vacancies in the Board of Directors a majority of the remaining members of the Board may elect Directors to fill such vacancies.

TENTH: In furtherance and not in limitation of the powers conferred by the Laws of the State of Delaware, the Board of Directors is expressly authorized:

To have the management of the business of the corporation, except as otherwise provided by the laws of Delaware or in this Certificate of Incorporation.

To make, alter, amend, or repeal the by-laws of the corporation, subject to the power of the holders of stock having voting power to alter, amend or repeal the by-laws made by the Board of Directors.

To make regulations from time to time for the closing of the corporation's stock transfer books and for

the fixing of dates as of which lists of stockholders entitled to vote at any meeting shall be prepared.

To authorize and cause to be executed mortgages and liens upon the real and personal property of the corporation.

To set apart out of any of the funds of the corporation available for dividends a reserve or reserves for any proper purpose and to abolish any such reserve in the manner in which it was created.

By resolution or resolutions passed by a majority of the whole board, to designate one or more committees, each committee to consist of two or more of the directors of the corporation, which, to the extent provided in said resolution or resolutions or in the by-laws of the corporation, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the corporation and may have power to authorize the seal of the corporation to be affixed to all papers which may require it. Such committee or committees shall have such name or names as may be stated in the by-laws of the corporation or as may be determined from time to time by resolution adopted by the Board of Directors.

When and as authorized by the affirmative vote of the holders of a majority of the stock issued and outstanding having voting power given at a stockholders' meeting duly called for that purpose, or when authorized by the written consent of the holders of a majority of the voting stock issued and outstanding, to sell, lease, or exchange all of the property and assets of the corporation, including its good will and its corporate franchises, upon such terms and conditions and for such consideration, which may be in whole

or in part shares of stock in, and/or other securities of, any other corporation or corporations, as its Board of Directors shall deem expedient and for the best interests of the corporation.

In addition to the powers and authorities hereinbefore or by statute expressly conferred upon them, the Directors may exercise all such powers and do all such acts and things as may be exercised or done by the corporation.

The powers of this corporation which the directors may exercise are subject to any obligations, limitations and restrictions imposed by the laws of the State of Delaware, by this Certificate, the by-laws of the corporation or whenever applicable, by the Organization Agreement of American Independent Oil Company, a Delaware Corporation, dated August 18, 1947 as thereafter from time to time supplemented, including the supplement effective April 17, 1958.

**ELEVENTH:** All meetings of the stockholders and of the Board of Directors of the corporation shall be held in such place or places within or without the State of Delaware as the Board of Directors may determine. The stockholders and Board of Directors of the corporation shall have power to have an office, or offices, and to keep the books of the corporation, subject to the provisions of the laws of Delaware, outside of said State at such place, or places, as may from time to time be designated by the Board of Directors or in the by-laws of the corporation.

Elections of Directors need not be by ballot unless the by-laws of the corporation shall so provide.

**TWELFTH:** The corporation reserves the right to amend, alter, change, or repeal any provision contained in

Certificate of Incorporation, provided that no amendment, alteration, change or repeal of any such provision can be made except upon receiving an affirmative vote of a majority of the stockholders holding stock in the corporation issued and outstanding and entitled to vote thereon, and all rights conferred upon stockholders herein are granted subject to this reservation.

WE, THE UNDERSIGNED, being each of the incorporators hereinbefore named for the purpose of forming a corporation in pursuance of the General Corporation Law of the State of Delaware, do make this certificate, hereby declaring and certifying that the facts herein stated are true, and accordingly have hereunto set our hands and seals this 6th day of January A. L. 1960.

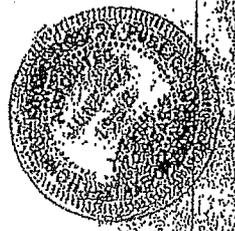
*B. F. [unclear]*  
*L. A. [unclear]*  
*[unclear]*

STATE OF DELAWARE }  
COUNTY OF NEW CASTLE } SS.

BE IT REMEMBERED that on this 6th day of January A. D. 1960, personally came before me, a notary public for the State of Delaware, all of the parties to the foregoing certificate of incorporation, known to me personally to be such, and severally acknowledged the said certificate to be the act and deed of the signers respectively and that the facts therein stated are truly set forth.

GIVEN under my hand and seal of office the day and year aforesaid.

*Howard K. Smith*  
Notary Public



**TAB 12**

# Delaware

PAGE 1

*The First State*

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF OWNERSHIP, WHICH MERGES:

"AMINOIL MARKETING, INC.", A DELAWARE CORPORATION,  
WITH AND INTO "PHILLIPS PETROLEUM COMPANY" UNDER THE NAME OF  
"PHILLIPS PETROLEUM COMPANY", A CORPORATION ORGANIZED AND  
EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED  
AND FILED IN THIS OFFICE THE THIRTIETH DAY OF APRIL, A.D. 1986,  
AT 9 O'CLOCK A.M.

0064324 8100M

070356032



*Harriet Smith Windsor*

Harriet Smith Windsor, Secretary of State  
AUTHENTICATION: 5537733

DATE: 03-26-07

8601200090

FILED

APR 30 1986

*Halt...*  
SECRETARY (P. 2128)

CERTIFICATE OF OWNERSHIP AND MERGER

MERGING

AMINOIL MARKETING, INC.

INTO

PHILLIPS PETROLEUM COMPANY

(Pursuant to Section 253 of the  
General Corporation Law of the State of Delaware)

PHILLIPS PETROLEUM COMPANY (hereinafter referred to as  
the "Company"), a Delaware corporation, does hereby certify as  
follows:

FIRST: That the Company is incorporated pursuant to  
the General Corporation Law of the State of Delaware.

SECOND: That the Company owns all of the outstanding  
shares of each class of the capital stock of Aminoil Marketing,  
Inc.

THIRD: That the Company, by the following resolution  
of its Board of Directors, duly adopted on the 29th day of April,  
1986, determined to merge into itself AMINOIL MARKETING, INC. on  
the conditions set forth in such resolution.

86002

R E S O L U T I O N

WHEREAS, this Company owns all of the outstanding shares of each class of the common stock of its subsidiary, Aminoil Marketing, Inc. (AMI), and

WHEREAS, it is in the best interests of this Company to merge into this Company its subsidiary, AMI, and to assume all of the AMI assets, liabilities, and obligations;

WHEREAS, a portion of AMI's assets consist of the Ship Shoal Block 113, Eugene Island, Main Pass, Ship Shoal 149/154, and Ship Shoal 222 pipeline systems, which are located offshore Louisiana (hereinafter the "Property"); and

WHEREAS, upon completion of the merger of AMI into this Company, it is desirable for this Company to contribute the Property to the capital surplus account of Phillips 66 Company (P66Co), a wholly-owned subsidiary of this Company;

NOW, THEREFORE, BE IT RESOLVED, that this Company merge into itself its subsidiary, AMI, and assume all of said subsidiary's assets, liabilities, and obligations, and, subsequently that this Company contribute the Property to the capital surplus account of P66Co;

RESOLVED, FURTHER, that the Chairman of the Board of Directors, the President, any Executive Vice President, Senior Vice President or Vice President of this Company, and each of them severally (with or without attestation and affixation of the seal of this Company by the Secretary or Assistant Secretary, with attestation and affixation are hereby authorized), are hereby authorized for and on behalf of this Company to make, execute and acknowledge a certificate of ownership and merger setting forth a copy of this resolution to merge said AMI into Phillips Petroleum Company and to assume said subsidiary's assets, liabilities, and obligations, and to file the same in

00003

the office of the Secretary of the State of Delaware and a certified copy thereof in the office of the Recorder of Deeds of Kent County, Delaware; and

RESOLVED, FURTHER, that the officers herein authorized are further authorized to execute any and all documents, instruments, certificates or other written agreements and to do and perform any and all acts, all as such authorized officer or officers, in his or their sole discretion, deem necessary or advisable in order to effect such contribution and to further effectuate evidence of such merger for the purposes and intent of this resolution.

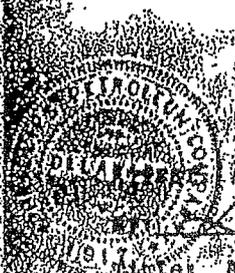
RESOLVED, FURTHER, that the acts of any officer or officers above-authorized in taking or causing any of the action or actions herein authorized by this resolution to be taken be and they are hereby ratified and confirmed in all respects.

IN WITNESS WHEREOF, the Company has caused its corporate seal to be affixed and this Certificate of Ownership and Merger to be signed by J. Bryan Whitworth, its Vice President, and D. L. Cone, its Assistant Secretary, this 29th day of April, 1986.

PHILLIPS PETROLEUM COMPANY

By: [Signature]

Title: Vice President



[Signature]  
Title: Assistant Secretary

00004

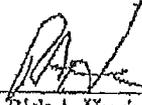
**TAB 13**



IN WITNESS WHEREOF, Phillips has caused this certificate to be executed this  
12th day of December, 2002.

PHILLIPS PETROLEUM COMPANY

W

By:   
Name: Rick A. Harrington  
Title: Senior Vice President, Legal,  
and General Counsel

12-12-02 10:22AM CONOCO

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Rick A. Harrington  
Senior Vice President, Legal,  
and General Counsel

ConocoPhillips  
P.O. Box 4763  
Houston, Texas 77210-4763  
Phone: (281) 293-1085  
Fax: (281) 293-5037

December 12, 2002

VIA TELECOPIER

Mrs. Ronnie Pletsch  
Division of Corporations  
State of Delaware  
John G. Townsend Building  
Duke of York Street  
Dover, DE 19901

Re: ConocoPhillips Company

Dear Mrs. Pletsch:

ConocoPhillips, a Delaware corporation, has a number of affiliated corporations registered with the Secretary of State of the State of Delaware. Among these affiliated companies are Conoco Inc. and Phillips Petroleum Company. Several transactions will be taking place simultaneously as a part of the restructuring of these companies.

Conoco Inc. intends to file a Certificate of Amendment pursuant to which Conoco Inc. will change its name to ConocoPhillips Holding Company (the "Conoco Amendment"). At the same time, Phillips Petroleum Company intends to file a Certificate of Amendment pursuant to which Phillips Petroleum Company will change its name to ConocoPhillips Company (the "Phillips Amendment").

ConocoPhillips Company and ConocoPhillips will be related entities, and we do not feel that any confusion will exist with respect to any perceived similarity of names. Service of process received on either of these subject corporations shall be deemed proper service on the appropriate entity. ConocoPhillips, ConocoPhillips Company and ConocoPhillips Holding Company each hereby agree to indemnify the Office of the Secretary of State of the State of Delaware in the event of any action brought against the State of Delaware as a result of any confusion with regard to the use of similar names in this instance.

FROM RL&F#1

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12-12-02 10:29AM CONSON

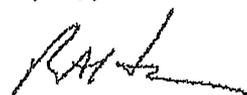
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Mrs. Ronnie Pletsch  
December 12, 2002  
Page 2

If you have any questions or comments regarding this matter, please do not hesitate to contact me.

Very truly yours,



Rick A. Harrington  
Senior Vice President, Legal, and  
General Counsel

cc: Donald A. Bussard, Esquire

**TAB 14**







711 Grand Avenue, Suite 220  
San Rafael, California 94901  
415.460.6770 • Fax 415.460.6771  
main@westenvironmental.com

February 28, 2011

Mr. Daniel E. Hall  
Wickland Corporation  
P.O. Box 13648  
Sacramento, CA 95853

Subject: Soil Gas and Groundwater Investigation, BART MacArthur Station parking lot,  
Oakland, California

Dear Mr. Hall:

Pursuant to your request, West Environmental Services & Technology, Inc (WEST) has prepared a summary of findings from the January and February 2011 soil gas and groundwater investigation conducted within the Bay Area Rapid Transit (BART) MacArthur Station parking lot in Oakland, California (Figure 1). The investigations were conducted in response to the California Regional Water Quality Control Board – San Francisco Bay Region (Regional Board) November 18, 2010 requirement to evaluate the potential for contaminants to migrate in soil gas and groundwater from the northern portion of 3875 Telegraph Avenue (former Regal Station) onto the BART property.

Based on our recent investigations, the highest benzene found in soil gas above laboratory-reporting limits on the BART property is found near the southern portion of 3875 Telegraph Avenue. The data also confirm that there is more than one source of petroleum hydrocarbons affecting the BART property.

## **1.0 BACKGROUND**

Petroleum hydrocarbons have been released on 3875 Telegraph Avenue in Oakland, California to the east of the BART MacArthur Station parking lot. Between 1928 and 1935, Associated Oil Company was a tenant on the southern portion of what is currently 3875 Telegraph Avenue. In the 1930s, a service station was located on the southwest corner of 3855 Telegraph Avenue and another service station was located at 3881 Telegraph Avenue on the northern portion of 3875 Telegraph Avenue. In the mid-1930s, the gasoline service station on the southwest portion of 3855 Telegraph Avenue was no longer in business. In the 1940s, the two gasoline service stations had been removed and an automobile parking lot occupied the northern portion of 3875 Telegraph Avenue.

In the 1950s, the southern portion of 3875 Telegraph Avenue was occupied by a tamale factory and restaurant; and the northern portion was occupied by another gasoline service station. Between 1961 and 1971, Regal Petroleum Corporation (not affiliated with Wickland Corporation) leased the northern portion of 3875 Telegraph Avenue for operation of a gasoline service station. Features of the gasoline service station included: a service station building; pump islands; a cashier's office; and two 200-gallon underground storage tanks (USTs) and one 400-gallon UST.

Between approximately 1971 and 1984, Wickland Corporation (Wickland) operated the gasoline service station on the northern portion of 3875 Telegraph. In the mid-1970s, permits were issued for the three existing tanks: one 8,000-gallon UST; one 5,000-gallon UST; and one 2,500-gallon UST; and one new 10,000-gallon UST.

In 1984, 3875 Telegraph Avenue was purchased by East Bay Outpatient Surgery for development as a surgery center. In May 1985, as part of the surgery center construction, the UST excavation backfill material was removed. The former UST excavation was subsequently over-excavated to a depth of approximately 15-feet below ground surface with approximately 1,070-cubic yards of soil being removed for offsite disposal. During the excavation activities, a 36-inch diameter sump was uncovered outside the edge of the former UST excavation. The sump appeared to extend to a depth of approximately 25-feet below ground surface and contained a "dark fluid" (HLA, 1992). The fluid level was estimated to be approximately 16-feet below ground surface. Prior to backfilling the UST excavation, a four-inch diameter slotted pipe was placed in the area of the former sump. A solid pipe was outfitted to the slotted portion and angled to the ground surface outside the building foundation footprint and along the northwest side of the building to facilitate future access (HLA, 1992).

In 2001, Terracon conducted soil and groundwater investigation at 3875 Telegraph Avenue for Healthsouth Corporation of Birmingham, Alabama to ascertain if there had been a release of petroleum hydrocarbons or other hazardous materials on the Site. Terracon's investigation included advancing six borings, B-1 to B-6, to a depth of approximately 25-feet below ground surface for the collection of soil and groundwater samples.

In January 2005, Gribi Associates (Gribi) collected 18 soil and 5 groundwater samples from borings advanced within the BART parking lot to the west; and within the southern parking lot at 3875 Telegraph Avenue. Subsequently, between February 2005 and June 2005, Ninyo & Moore, conducted investigations of the MacArthur BART parking lot as part of predevelopment evaluations. The investigations included the collection of soil and groundwater samples from 27 borings (February 2005) and soil gas samples from 15 borings (June 2005) advanced within: 39<sup>th</sup> Street; 40<sup>th</sup> Street; Appgar Street; and the BART parking lot.

Subsequently, WEST on behalf of Wickland, conducted soil, soil gas and groundwater investigations in March and April 2008 at 3875 Telegraph Avenue. WEST also conducted investigations in the BART parking lot in August 2009. The investigations revealed: the presence of petroleum hydrocarbons including benzene and methyl tertiary butyl ether (MTBE) in groundwater downgradient of the former USTs excavation; contributions of TPH to groundwater attributable to upgradient and offsite sources; and contributions of petroleum hydrocarbons to soil and groundwater attributable to downgradient and offsite releases.

In May 2010, Iris Environmental conducted soil and soil gas investigations in the MacArthur BART parking lot in preparation for development of the MacArthur BART Transit Village project. The investigations included the collection of eight soil samples and 11 soil gas samples. Laboratory analysis of the soil samples revealed benzene up to 99 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) in the sample collected at 5-feet below ground surface from boring SG-25, advanced

near the southern property boundary. Laboratory analysis of the soil gas samples revealed benzene up to 62,000 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) in the sample collected from boring SG-24, advanced within the BART parking lot. The results of the soil gas sampling are depicted on Figure 3.

Due to the detections of benzene in soil gas within the BART parking lot, the Regional Board requested in November 2010 that investigations be conducted to evaluate the potential for contaminants to migrate in soil gas and groundwater from the northern portion of 3875 Telegraph Avenue (former Regal Station) onto the BART property. The Regional Board also acknowledged that Chevron Texaco would be required to conduct similar investigations to characterize potential migration of releases from its former operations on the southern portion of 3875 Telegraph Avenue onto the BART property. Details of the recent investigations and findings conducted on behalf of Wickland are presented below.

## **2.0 SOIL VAPOR AND GROUNDWATER INVESTIGATION**

In January 2011, to further assess the potential contributions of benzene from the northern portion of 3875 Telegraph Avenue, WEST installed three paired soil vapor and groundwater monitoring wells within the BART parking lot. WEST collected samples for laboratory analysis following equilibration of the vapor wells and development of the monitoring wells. A summary of the investigations and associated findings is presented below.

### **2.1 Permitting, Health and Safety, Utility Clearance**

Prior to subsurface investigations, boring and monitoring well permits were obtained from the Alameda County Public Works Agency (ACPWA). In addition, a Permit to Enter was obtained from BART authorizing access onto the property for installation of the vapor and groundwater monitoring wells.

A Site-specific *Health and Safety Plan* (“*HASP*”) was prepared to address worker health and safety during investigation activities. The *HASP* was prepared in accordance with the California Occupational Health and Safety Administration (CalOSHA) Title 8 §5192 Hazardous Waste Operations and Emergency Response and United States OSHA 29 CFR 1910.120, Hazardous Waste Operations and Emergency Responses. The *HASP* was approved by the Project Manager, a Quality Assurance Reviewer and the onsite Safety Officer. The *HASP* was read and signed by all onsite workers and Site visitors prior to entering the work area.

Pursuant to California Assembly Bill AB 73, Underground Services Alert (USA) was contacted to locate and clear work areas for underground utilities at the Site. The work areas were also cleared for underground utilities using a private underground utility locating contractor.

## 2.2 Soil Vapor Investigation

### 2.2.1 Vapor Monitoring Well Installation

Borings VP-1, VP-2, and VP-3 were advanced in the BART parking lot for installation of the vapor wells using 2-inch diameter hand-held auger equipment (Figure 2). The vapor well borings were advanced to depth of approximately 5-feet below ground surface. Following completion of each boring, the vapor well was constructed within the boring annulus. The base of the vapor well was constructed using a 6-inch long 0.75-inch diameter Schedule 40 polyvinyl chloride (PVC) slotted well screen with 0.020-inch slots. The top of the slotted well screen was outfitted with 4.5-foot long 0.75-inch diameter Schedule 40 blank PVC well casing to the ground surface. A sand filter pack was placed between the slotted well screen and the borehole to depth of approximately 6-inches above the top of the slotted screen. An approximately 1-foot long bentonite seal was placed above the sand filter pack. A Portland Type II cement grout was then placed above the bentonite seal to the ground surface. The top of the vapor well was completed at the ground surface with a flush-mounted steel traffic-rated well box. A summary of the vapor well construction details is included in Table 1.

### 2.2.2 Soil Vapor Well Sampling

On February 1, 2011, soil vapor samples were collected from the vapor monitoring wells VP-1, VP-2 and VP-3. A summary of the sample collection methodology and analytical results is presented below.

#### 2.2.2.1 Soil Vapor Well Sample Collection Methodology

Vapor samples were collected following the procedures outlined in ASTM D 5314 and the CalEPA's Advisory – *Active Soil Gas Investigation*. The top of the vapor wells were equipped with a stopcock sample port outfitted with a ¼-inch diameter brass hose barb. A length of disposable ¼-inch diameter polyethylene tubing was then attached to the hose barb and connected to a peristaltic pump at the ground surface.

Prior to soil vapor sample collection, the vapor monitoring wells were purged using the peristaltic pump, while field screening the purge effluent. The purge effluent was field screened using a photoionization detector (PID) equipped with a 10.6 electron Volt (eV) lamp and calibrated with isobutylene gas. The purge volume was selected based on the maximum organic vapor concentration measured with the PID at a purge volume interval of one, three or seven well volumes. Based on the maximum detection of organic vapors with the PID, one tubing volumes were purged prior to vapor sample collection at VP-1, VP-2 and VP-3. The results of the purge volume testing are recorded on field data forms provided in Appendix B.

Following purging activities, purge tubing was attached to a laboratory prepared one-liter Summa canister. The Summa canisters were delivered by the analytical laboratory with a vacuum of approximately 30-inches of water and outfitted with 0.2-liter per minute flow control valve. The tubing was then connected to the Summa canister using airtight stainless-steel

fittings. The flow control valve was then opened slowly to draw the vapor sample. Following sample collection, the Summa canister atmosphere was then measured with a pressure gauge and recorded on field data forms (Appendix B).

Following collection, the soil vapor samples were labeled and then transported to K Prime, Inc. of Santa Rosa, a California Department of Public Health (CDPH), Environmental Laboratory Accreditation Program (ELAP) certified laboratory pursuant to ASTM D 4840 chain-of-custody protocols, for analysis of volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method TO-15.

#### 2.2.2.2 Laboratory Analytical Results

Laboratory analysis of the vapor samples collected on February 1, 2011 revealed benzene at: 77,500  $\mu\text{g}/\text{m}^3$  in the sample collected from the vapor monitoring well VP-2, and 241,000  $\mu\text{g}/\text{m}^3$  in the sample collected from the vapor monitoring well VP-3. Laboratory analysis of the sample collected from the vapor-monitoring well VP-1 did not reveal benzene above the laboratory-reporting limit of 31,900  $\mu\text{g}/\text{m}^3$ . The elevated laboratory-reporting limits for the sample from VP-1 were due to the presence of non-target analytes. The analytical results for the vapor samples are summarized in Table 3 and depicted on Figure 3. Copies of laboratory data certificates and chain-of-custody forms are included in Appendix C.

### 2.3 Groundwater Investigation

#### 2.3.1 Monitoring Well Installation and Construction

Three well borings, MW-5, MW-6, and MW-7, were advanced within the BART parking lot for installation of monitoring wells (Figure 2). The borings were advanced using hydraulic direct-push equipment operated by a California State C-57 licensed well drilling contractor. The borings were drilled using two-inch diameter push rods equipped with a 2-inch diameter 4-foot long core barrel outfitted with an acetate liner insert. Soil core samples were collected continuously within the acetate liners. The soil core samples were described using the USCS and summarized on lithologic logs. In addition, the soil core samples were field screened for organic vapors using a PID calibrated with isobutylene gas. The results of the field screening were recorded on the lithologic logs. Upon completion of the borings, groundwater-monitoring wells were constructed within the borings (Appendix A).

The base of the groundwater-monitoring wells was constructed of approximately 10-foot long, one-inch diameter Schedule 40 PVC slotted pre-pack well screens. The top of the slotted screen well casings were outfitted with one-inch diameter Schedule 40 PVC blank well casings to the ground surface. A sand filter pack composed of #2/16 sand was placed between the slotted well casing and the borehole to a depth of approximately 2-feet above the slotted well screen.

A two-foot seal consisting of bentonite pellets was placed above the pre-pack well screen. A Portland Type II cement grout seal was then placed above the bentonite seal to the ground surface. The top of the well casing was completed with a traffic-rated flush-mount steel

protective box and locking cap for security. A summary of the groundwater monitoring well construction details is included in Table 1. The groundwater well logs are included in Appendix A.

### **2.3.2 Well Development**

Following installation and a minimum of 48-hours for the grout seal to setup, the monitoring wells were developed to remove suspended sediments generated during installation. A copy of the field data sheets collected during well development is attached in Appendix B.

### **2.3.3 Groundwater Sampling**

#### **2.3.3.1 Depth to Water Measurements**

Prior to groundwater sampling, depth to groundwater measurements were collected from monitoring wells MW-5, MW-6 and MW-7. In January 2011, the depth to groundwater measurements in the monitoring wells ranged from 6.41-feet below ground surface (MW-6) to 6.79-feet below ground surface (MW-5). The depths to groundwater measurements are summarized in Table 4.

#### **2.3.3.2 Groundwater Sampling Methodology**

Groundwater samples were collected from monitoring wells MW-5, MW-6 and MW-7 on January 31, 2011 using low-flow sampling techniques. Prior to sampling, water within the well casings was purged for a minimum of 15 minutes. Groundwater parameter data including: temperature; pH; electrical conductivity; turbidity; and dissolved oxygen (DO) were measured during well purging to monitor stability of parameters and recorded on groundwater sampling field data sheets.

Groundwater samples were collected once the indicator parameters collected during purging had stabilized for three consecutive readings, as follows: plus/minus 0.1 Standard Units (S.U.) for pH; plus/minus three percent for specific conductance; and plus/minus 10 percent for turbidity and DO.

Following purging, the groundwater samples were collected into laboratory supplied zero headspace 40-milliliter glass volatile organic analysis (VOA) vials preserved with hydrochloric acid and an unpreserved one-liter amber glass bottle. Following sample collection, the samples were labeled, placed in a chilled cooler and transported to K Prime, Inc, a CDPH ELAP certified laboratory pursuant to ASTM D4840 chain-of-custody protocols. The groundwater samples and a laboratory-prepared travel blank were submitted to K Prime, Inc. of Santa Rosa, California. The groundwater samples were analyzed for: TPHg by USEPA Method 8015M; petroleum related VOCs by USEPA Method 8021B. Copies of the groundwater sampling field data sheets are included in Appendix B.

### 2.3.3.3 Laboratory Analytical Results

Laboratory analysis of groundwater samples collected from monitoring well MW-5 on January 31, 2011 revealed: TPHg at 6,720 micrograms per liter ( $\mu\text{g/l}$ ); benzene at 1,940  $\mu\text{g/l}$ ; toluene at 24.2  $\mu\text{g/l}$ ; ethyl benzene at 327  $\mu\text{g/l}$ ; and xylenes at 486  $\mu\text{g/l}$ . Laboratory analysis of groundwater samples collected from monitoring well MW-6 revealed: TPHg at 1,400  $\mu\text{g/l}$ ; benzene at 25.5  $\mu\text{g/l}$ ; toluene at 1.25  $\mu\text{g/l}$ ; ethyl benzene at 41.4  $\mu\text{g/l}$ ; and xylenes at 6.93  $\mu\text{g/l}$ . Laboratory analysis of the duplicate groundwater samples collected from monitoring well MW-6 revealed: TPHg at 1,270  $\mu\text{g/l}$ ; benzene at 27.1  $\mu\text{g/l}$ ; toluene at 1.68  $\mu\text{g/l}$ ; ethyl benzene at 40.5  $\mu\text{g/l}$ ; and xylenes at 6.63  $\mu\text{g/l}$ . Laboratory analysis of groundwater samples collected from monitoring well MW-7 on January 31, 2011 revealed: TPHg at 2,370  $\mu\text{g/l}$ ; benzene at 350  $\mu\text{g/l}$ ; toluene at 277  $\mu\text{g/l}$ ; ethyl benzene at 137  $\mu\text{g/l}$ ; and xylenes at 497  $\mu\text{g/l}$ . The analytical results for the groundwater samples are summarized in Table 5 and depicted on Figure 4. Copies of laboratory data certificates and chain-of-custody forms are included in Appendix C.

## 3.0 DATA EVALUATION

The results from the three recently installed groundwater-monitoring wells revealed varying concentrations with the highest benzene (1,940  $\mu\text{g/l}$ ) found in the samples from the northern most monitoring well, i.e., MW-5. The samples from the middle monitoring well, MW-6, revealed a benzene concentration (25.5  $\mu\text{g/l}$ ) approximately 1.5 percent of that found in the sample from MW-5. The southern most groundwater monitoring well, MW-7, revealed benzene at 350  $\mu\text{g/l}$  or approximately 1,300 percent higher than in the sample from monitoring well MW-6. This relative disparity in benzene concentrations indicates more than one source of contamination has affected groundwater in the BART parking lot.

In contrast to the groundwater benzene concentrations, the recent investigation revealed the highest benzene vapor concentration in the southernmost vapor-monitoring well, VP-3, i.e., near the southern portion of 3875 Telegraph Avenue. Despite the lowest benzene groundwater concentration in the middle groundwater well MW-6, benzene was found in the middle vapor well VP-2 at more than 200 percent of the concentration of that reported for the sample from the northernmost vapor well VP-1.

Further discussion of these findings including the volatilization process that describes the fate and transport of petroleum hydrocarbons in the subsurface is presented below.

### 3.1 Volatilization

Volatilization is the process by which a chemical is transferred from soil or water into the vapor phase. The process of volatilization describes the partitioning of VOCs between groundwater and the soil gas. The equilibrium relationship between the concentration of a VOC in groundwater and soil gas can be described by the following equation, where H = Henry's constant:

$$H = \text{Concentration in Air } (\mu\text{g/l}) / \text{Concentration in Water } (\mu\text{g/l})$$

The dimensionless Henry's constant for benzene is 0.23 (USEPA, 1996). The Henry's constant should describe the relationship of the benzene in soil gas and groundwater at the three well pairs (e.g., VP-1/MW-5). Therefore, the groundwater with 1,940  $\mu\text{g/l}$  of benzene in monitoring well MW-5 should have an equilibrium vapor phase benzene concentration of 446.2  $\mu\text{g/l}$  or 446,200  $\mu\text{g/m}^3$ . However, sample data from groundwater monitoring well MW-5 paired vapor monitoring well VP-1 revealed benzene at less than the laboratory-reporting limit of 31,900  $\mu\text{g/m}^3$ .

Similarly, benzene in groundwater from monitoring well MW-6 at 25.5  $\mu\text{g/l}$  should have a vapor phase concentration of benzene at 5.865  $\mu\text{g/l}$  or 5,685  $\mu\text{g/m}^3$ . However, benzene in vapor well VP-2 located adjacent to MW-6 revealed at 77,500  $\mu\text{g/m}^3$ , i.e., more than ten times the amount in vapor than is attributable to volatilization from groundwater near MW-6. Similarly, the benzene in the vapor sample from VP-3 was found at 241,000  $\mu\text{g/m}^3$ , approximately 300 percent of the equilibrium vapor phase concentration of 80,500  $\mu\text{g/m}^3$  based on the reported 350  $\mu\text{g/l}$  of benzene in MW-7. Based on the lack of correlation of the vapor and groundwater benzene concentrations, additional data are needed to define the source of the vapor phase benzene.

### 3.2 Weathering

During weathering, the more volatile lower boiling point constituents including the aromatic hydrocarbons benzene, ethyl benzene, toluene, and xylenes will volatilize faster and the higher boiling point constituents will be lost more slowly. A review of the groundwater monitoring data reveals that approximately 40 percent of the 6,720  $\mu\text{g/l}$  of TPHg in monitoring well MW-5 is comprised of benzene, toluene, ethyl benzene and xylenes (i.e., total 2,777  $\mu\text{g/l}$ ) indicating a relatively unweathered release.

In contrast, approximately 5 percent of the 1,400  $\mu\text{g/l}$  of TPHg found in samples from monitoring well MW-6 is comprised of the aromatic petroleum hydrocarbons (i.e., benzene, toluene, ethyl benzene and xylenes total 75  $\mu\text{g/l}$ ). The relatively low percentage of the aromatic petroleum hydrocarbons indicates a more weathered gasoline source has affected the groundwater near monitoring well MW-6.

Farther to the south of MW-6, the sample from MW-7 revealed approximately 53 percent of the TPHg (2,370  $\mu\text{g/l}$ ) is composed of benzene, toluene, ethyl benzene and xylenes (1,261  $\mu\text{g/l}$ ), indicating a less weathered source has impacted groundwater in this portion of the BART parking lot.

The presence of the relatively more weathered gasoline at MW-6 indicates a separate and more weathered release has impacted this area of the BART parking lot. Similarly, the discontinuity in relative weathering from north to south also indicates that the petroleum hydrocarbons found in MW-7 likely originated from a separate source than MW-5. This analysis of the aromatic hydrocarbons in the groundwater samples supports the conclusion that petroleum hydrocarbons found in the BART parking lot originated from different sources, i.e., northern, central and southern sources.

#### 4.0 SUMMARY

The recent investigation has revealed a pattern of contamination in the BART parking lot that does not appear consistent with a single source of contamination. The data revealed a relatively weathered source contributing to the groundwater contamination in MW-6 with less weathered gasoline found in the samples from the northern monitoring well MW-5 and the southern monitoring well MW-7.

The investigation also revealed the benzene found in soil gas is not explained by the groundwater concentrations of benzene. Additional investigations are warranted to verify the findings of this investigation and further characterize the relationship of the benzene in soil gas and groundwater within the BART parking lot. Therefore, a second round of sampling of the monitoring wells was performed in February 2011. A supplemental analysis will be prepared pending the results of the second sampling event.

Please call me at 415/460-6770, extension 208, if you have any questions or wish to discuss this further.

Sincerely,



Peter M. Krasnoff, P.E.  
Principal Engineer



Attachments

cc: Mark Johnson, Regional Board  
Lori Gualco, Esq.

**TABLES**

TABLE 1  
SUMMARY OF GROUNDWATER MONITORING WELL CONSTRUCTION DETAILS  
3875 Telegraph Avenue  
Oakland, California

Well ID	Date Installed	Monitoring Well Construction Details					
		Well Diameter	Total Depth	Screen Interval	Sand Pack Interval	Bentonite Seal	Grout Seal
		(inches)	(ft bgs)	(ft bgs)	(ft bgs)	(ft bgs)	(ft bgs)
MW-1	3/29/08	1	30	15 to 30	13 to 30	11 to 13	0 to 11
MW-2	3/29/08	1	23	13 to 23	11 to 25	9 to 11	0 to 9
MW-3	3/29/08	1	22	12 to 22	10 to 25	8 to 10	0 to 8
MW-4	3/29/08	0.75	22	12 to 22	10 to 22	2 to 10	0 to 2
MW-5	1/21/11	1	18	8 to 18	6 to 18	4 to 6	0 to 4
MW-6	1/21/11	1	18	8 to 18	6 to 18	4 to 6	0 to 4
MW-7	1/21/11	1	17	7 to 17	5 to 18	3 to 5	0 to 3
VP-1	1/21/11	0.75	5	4.5 to 5	4 to 5	3 to 4	0 to 3
VP-2	1/21/11	0.75	5	4.5 to 5	4 to 5	3 to 4	0 to 3
VP-3	1/21/11	0.75	5	4.5 to 5	4 to 5	3 to 4	0 to 3

Notes:

ft bgs: feet below ground surface

TABLE 2  
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Location	Sample ID	Date	Depth (ft)	Petroleum Hydrocarbons			Volatile Organic Compounds				
				TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE
				(mg/kg)	(mg/kg)	(mg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
<i>Terracon</i>											
Onsite	B-1	8/28/01	15	--	--	--	420	86	4,700	16,500	--
	B-2		19.5	--	--	--	ND	ND	9,600	2,000	--
	B-3		15.5	--	--	--	ND	ND	ND	ND	--
	B-4		14.5	--	--	--	ND	ND	45	320	--
	B-5		21.5	--	--	--	ND	ND	ND	ND	--
	B-6		11.5	--	--	--	ND	ND	ND	ND	--
<i>Gribi</i>											
BART Parking Lot	B-1	1/8/05	7.5	<0.5	--	--	<5.0	<5.0	<5.0	<10	<20
			11.5	<0.5	--	--	<5.0	<5.0	<5.0	<10	<20
			13	18.0	--	--	<5.0	14	120	27	120
			15	0.77	--	--	<5.0	<5.0	<5.0	<10	<20
			16	4.4	--	--	<5.0	13	26	<10	30
	B-2		7	190	--	--	<5.0	710	4,100	7,800	200
			14	670	190	--	440	<5.0	140	410	200
			7.5	65	--	--	75	52	500	212	220
	B-3		11.5	170	--	--	<5.0	1,800	2,800	14,800	370
			15	5	--	--	130	8.4	20	78	<20
7.5		<0.5	--	--	<5.0	<5.0	<5.0	<10	<20		
11.5		<0.5	<10	--	<5.0	<5.0	<5.0	<10	<20		
Onsite	B-4	15	39.0	--	--	630	<5.0	1,500	3,600	58	
		19.5	90.0	--	--	1,400	1,100	2,000	9,300	180	
		7.5	1.4	<10	--	<5.0	<5.0	<5.0	<10	<20	
	B-5	11.5	<0.5	--	--	<5.0	<5.0	<5.0	<10	<20	
		15.5	16.0	--	--	<5.0	<5.0	54	<10	<20	
		19.5	1.1	--	--	<5.0	<5.0	13	20	<20	
		7.5	<0.5	--	--	<5.0	<5.0	<5.0	<10	<20	
<i>BART</i>											
3901 Telegraph	B-4	2/05	5	<1.1	9.3	55	<4.9	<4.9	<4.9	<4.9	<4.9
			10	<1.1	1.0	<5.0	<4.8	<4.8	<4.8	<4.8	<4.8
Apgar Street	B-5	2/05	5	<1.1	33	210	<4.9	<4.9	<4.9	<4.9	<4.9
			10	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
			17	<1.0	51	5.3	--	--	--	--	--
3801 Telegraph	B-6	2/05	5	<0.99	1.8	<5.0	--	--	--	--	--
			10	<1.0	1.1	<5.0	--	--	--	--	--
BART Central Parking	B-16	2/05	2	<1.0	19	140	<4.7	<4.7	<4.7	<4.7	<4.7
			5	2,700	240	<25	5,700	26,000	49,000	150,000	<1,000
	B-20		2	--	10	110	--	--	--	--	--
	B-21		2	<1.1	3.9	5.7	<4.8	<4.8	<4.8	<4.8	<4.8
			5	300	63	6.9	<25	<25	630	260	<100
	B-22		2	<1.0	11	12	<4.5	<4.5	<4.5	<4.5	<4.5
			5	<1.0	26	180	<5.1	<5.1	<5.1	<5.1	<20
B-25	2	<1.1	160	470	<5.5	<5.5	<5.5	<5.5	<22		
5	6	130	71	<5.2	<5.2	<5.2	50	<21			

TABLE 2  
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Location	Sample ID	Date	Depth (ft)	Petroleum Hydrocarbons			Volatile Organic Compounds				
				TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE
				(mg/kg)	(mg/kg)	(mg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
<i>WEST</i>											
Onsite	W-1	3/29/08	6	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49
			10	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49
			17	40.0	<10.0	--	337	<200	<200	<200	<200
	W-2	3/29/08	8	<1.00	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
			14	286	<10.0	--	<500	<500	<500	<500	<500
	W-3	3/29/08	7	<1.00	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
			15	2.79	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
	W-5	3/29/08	6	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49
			9.5	<1.00	<10.0	--	<1.51	<1.51	<1.51	<1.51	<1.51
			15	99.6	<10.0	--	<200	<200	<200	<200	<200
	W-9/ MW4	3/29/08	7	<1.00	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
			10	<1.00	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
			13	<1.00	<10.0	--	<200	<200	<200	<200	<200
	W-10	5/1/08	5	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49
			10	<1.00	<10.0	--	<1.51	<1.51	<1.51	<1.51	<1.51
15			5.23	<10.0	--	<200	993	1560	<200	<200	
W-11	5/1/08	4	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49	
		10	<1.00	<10.0	--	<1.51	<1.51	<1.51	<1.51	<1.51	
		16	<1.00	<10.0	--	<1.51	<1.51	<1.51	<1.51	<1.51	
MW1	3/29/08	14	6.10	41.6	--	<200	<200	<200	<200	<200	
Offsite	W-8	8/5/09	2	<1.00	<10.0	--	2.20	<1.51	<1.51	<1.51	<1.51
			5	47.8	<10.0	--	356	<200	1,720	2,773	<200
	W-8A	8/5/09	2	<1.00	<10.0	--	<1.50	<1.50	<1.50	<1.50	<1.50
			5	<1.00	<10.0	--	<1.49	<1.49	<1.49	<1.49	<1.49
<i>Iris</i>											
Offsite	SG-5R	5/1/10	5	0.51	77	<5.0	37	<0.87	2.9	3.2	<3.5
	SG-16	5/1/10	3.5	0.40	<1.0	<5.0	25	<0.81	<0.81	<0.81	<3.2
	SG-17	5/5/10	5	<0.18	--	--	<0.92	<0.92	<0.92	<0.92	<3.7
	SG-18	5/5/10	1	<0.17	1.8	12	<0.86	<0.86	<0.86	<0.86	<3.4
			5	<0.17	<0.99	<5.0	<0.85	<0.85	<0.85	<0.85	<3.4
	SG-20	5/5/10	1	<0.18	<1.0	<5.0	<0.88	<0.88	<0.88	<0.88	<3.5
	SG-21	5/1/10	5	0.35	1.8	<5.0	<0.83	<0.83	<0.83	<0.83	<3.3
	SG-23	5/1/10	5	<0.18	<0.99	<5.0	<0.86	<0.86	<0.86	<0.86	<3.4
SG-25	5/1/10	5	0.78	6	<5.0	99	<0.92	2.0	1.2	<3.7	
Regional Board ESLs - Commercial				100	100	1,000	44	2,900	3,300	2,300	23

Notes:

mg/kg: Milligrams per kilogram  
µg/kg: Micrograms per kilogram  
ESLs: Environmental Screening Levels (November 2007)  
TPHg: Total Petroleum Hydrocarbons as Gasoline  
TPHd: Total Petroleum Hydrocarbons as Diesel  
TPHmo: Total Petroleum Hydrocarbons as Motor Oil

MTBE: Methyl Tertiary Butyl Ether  
TMB: Trimethylbenzene  
TCB: Trichlorobenzene  
<1.0: Less than the method detection limit of 1.0  
-- not sampled/not analyzed.

TABLE 3  
SUMMARY OF SOIL GAS SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Sample ID	Date	Depth (ft)	Volatile Organic Compounds						
			Benzene	Toluene	Ethyl benzene	Xylenes	PCE	TCE	TCM
			( $\mu\text{g}/\text{m}^3$ )						
<i>WEST</i>									
W-1	3/29/08	7	<16.0	<18.8	<21.7	<21.7	<33.9	<26.9	<24.4
W-3	3/29/08	5	<6.39	<7.54	<8.68	<8.68	<13.6	144	179
W-4	3/29/08	5	<16.0	<18.8	<21.7	<21.7	<33.9	<26.9	150
W-5	3/29/08	5	<63.9	<75.4	<86.8	<86.8	<136	<107	<97.7
W-6	3/29/08	5	<16.0	<18.8	24.3	<21.7	<33.9	<26.9	<24.4
W-7	3/29/08	5	<319	<377	<434	<434	<678	<537	<488
W-9	3/29/08	5	<6.39	<7.54	<8.68	<8.68	<13.6	<10.7	<9.77
VP-1	2/1/11	4.5 to 5	<31,900	<37,700	<43,400	<43,400	<67,800	<53,700	<48,800
VP-2	2/1/11	4.5 to 5	77,500	<75,400	<86,800	<86,800	<136,000	<107,000	<97,700
VP-3	2/1/11	4.5 to 5	241,000	<151,000	<174,000	<174,000	<271,000	<215,000	<195,000
<i>Iris</i>									
SG-5R	5/1/10	--	22,000	390	22,000	8,800	<470	<370	<340
SG-16	5/1/10	--	22,000	980	1,200	260	<200	<160	<140
SG-17	5/1/10	--	16	37	<8.7	13	<14	<11	64
SG-18	5/5/10	--	<42	56	<57	<57	<88	<70	<64
SG-19	5/5/10	--	12	49	16	51	<9.4	<7.4	<6.7
SG-20	5/5/10	--	35	81	20	63	<17	<14	<12
SG-21	5/1/10	--	340	76	140	<73	<110	<90	<82
SG-22	5/1/10	--	56	48	<8.2	11	<13	<10	<9.2
SG-23	5/1/10	--	<1,400	<1,700	<1,900	<1,900	<3,000	<2,400	<2,200
			<1,400	<1,700	<1,900	<1,900	<3,000	<2,400	<2,200
SG-24	5/1/10	--	62,000	460	12,000	490	<490	<390	<350
SG-25	5/1/10	--	42,000	240	500	290	<290	<230	<210
CHHSLs - Commercial			122	378,000	--	879,000	603	1,770	--

Notes:

ft: feet

$\mu\text{g}/\text{m}^3$ : micrograms per cubic meter

CHHSLs: California Human Health Screening Levels (January 2005)

PCE: Tetrachloroethene

TCE: Trichloroethene

TCM: Trichloromethene

<16.0: Less than the method detection limit of 16.0

TABLE 4  
SUMMARY OF GROUNDWATER ELEVATION DATA  
3875 Telegraph Avenue  
Oakland, California

Well ID	Top of Casing Elevation	Date	Depth to Water	Groundwater Elevation
	(ft MSL)		(ft bgs)	(ft MSL)
MW-1	81.22	4/24/08	14.70	66.52
		5/20/08	14.67	66.55
		10/2/08	15.45	65.77
		12/23/08	16.75	64.47
		3/21/09	13.37	67.85
		6/29/09	14.89	66.33
MW-2	79.22	4/24/08	15.00	64.22
		5/20/08	15.21	64.01
		10/2/08	15.79	63.43
		12/23/08	14.08	65.14
		3/21/09	14.10	65.12
		6/29/09	15.45	63.77
MW-3	78.45	4/24/08	13.85	64.60
		5/20/08	14.11	64.34
		10/2/08	14.66	63.79
		12/23/08	12.93	65.52
		3/21/09	12.92	65.53
		6/29/09	14.21	64.24
MW-4	80.54	4/24/08	13.82	66.72
		5/20/08	14.18	66.36
		10/2/08	15.09	65.45
		12/23/08	13.16	67.38
		3/21/09	13.17	67.37
		6/29/09	14.89	65.65
MW-5	--	1/31/11	6.79	--
MW-6	--	1/31/11	6.41	--
MW-7	--	1/31/11	6.57	--

Notes:

ft MSL: feet above Mean Sea Level using North American Vertical Datum of 1988  
ft bgs: feet below ground surface

TABLE 5  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Location	Sample ID	Date	Depth (ft)	Petroleum Hydrocarbons			Petroleum-Related VOCs				
				TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE
				(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
<i>Terracon</i>											
Onsite	B-1	8/28/01	--	--	--	--	11,000	760	2,600	9,300	--
	B-2	8/28/01	--	--	--	--	30	ND	100	162	--
	B-3	8/28/01	--	--	--	--	ND	ND	310	74	--
	B-4	8/28/01	--	--	--	--	ND	ND	ND	ND	--
	B-5	8/28/01	--	--	--	--	ND	ND	ND	ND	--
	B-6	8/28/01	--	--	--	--	ND	ND	ND	ND	--
<i>Gribi</i>											
BART Parking Lot	B-1	1/8/05	--	240	--	--	<1.0	<1.0	9.1	<2.0	<4.0
	B-2	1/8/05	--	14,000	--	--	220	<1.0	380	540	34
	B-3	1/8/05	--	80,000	--	--	3,800	1,700	5,400	21,800	<100
Onsite	B-4	1/8/05	--	140,000	--	--	21,000	1,700	8,500	33,600	<4.0
	B-5	1/8/05	--	130,000	--	--	<1.0	<1.0	8,000	6,680	390
<i>BART</i>											
3931 Telegraph	B-1	2/05	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0
3915 Telegraph	B-3	2/05	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0
3901 Telegraph	B-4	2/05	--	33,000	--	39,000	<5.0	<5.0	<5.0	<5.0	> <5.0
Apgar Street	B-5	2/05	--	23,000	4,800	<300	340	78	940	2,540	<71
3801 Telegraph	B-6	2/05	--	2,200	680	<300	11	<5.0	56	129	<5.0
	B-8	2/05	--	5,300	2,400	<300	69	<0.5	100	10	<2.0
MacArthur Blvd	B-9	2/05	--	920	2,500	<300	<5.0	<5.0	<5.0	<5.0	<5.0
	B-10	2/05	--	270	260	<300	<5.0	<5.0	<5.0	<5.0	<5.0
	B-11	6/05	--	--	--	<300	--	<5.0	2700	--	<5.0
BART South Parking	B-12	2/05	--	<50	<50	<300	<5.0	<5.0	<5.0	<5.0	<5.0
	B-13	2/05	--	--	620	670	20	<5.0	65	42	<5.0
	B-15	2/05	--	--	2,900	12,000	9.8	--	--	--	--
BART Central Parking	B-16	2/05	--	280,000	--	<15,000	47,000	48,000	6,500	34,300	<4,200
	B-16A	6/05	--	4,300	--	--	19	25	170	400	--
	B-16B	6/05	--	20,000	--	--	560	21	800	1,500	--
	B-17	2/05	--	3,500	900	--	20	<10	150	190	<10
	B-18	2/05	--	54	2,200	20,000	<5.0	<5.0	<5.0	<5.0	<5.0
	B-20	2/05	--	--	680	<300	290	<20	40	<20	<20
	B-21	2/05	--	4,600	2,600	<300	<10	<10	40	33	<10
	B-22	2/05	--	2,600	970	<300	<5.0	<5.0	<5.0	<5.0	<5.0
	B-24	2/05	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0
3501 MacArthur	B-33	2/05	--	<50	710	<300	<5.0	<5.0	70	266	<5.0

TABLE 5  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Location	Sample ID	Date	Depth (ft)	Petroleum Hydrocarbons			Petroleum-Related VOCs				
				TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE
				(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
<i>WEST</i>											
Onsite	W-1	3/29/08	20	759	585	--	70.2	<1.00	9.74	<1.00	5.91
			30	636	109	--	20.2	<1.00	4.28	<1.00	5.72
	W-2	3/29/08	30	2,430	1,120	--	<2.00	<2.00	<2.00	<2.00	<2.00
	W-3	3/29/08	29	82	<50	--	<0.500	<0.500	<0.500	<0.500	<0.500
	W-5	3/29/08	22	36,800	2,780	--	<25.0	<25.0	393	<25.0	<25.0
	W-9	3/29/08	22	24,000	630	--	<20.0	<20.0	517	62.8	<20.0
	W-10	5/1/08	25	440	95	--	<1.00	<1.00	49.2	<1.00	<1.00
W-11	5/1/08	25	<50	<50	--	<0.500	<0.500	<0.500	<0.500	<0.500	
Offsite	W-8	8/5/09	16	5,520	546	--	874	41.2	248	931	<5.00
			19	6,360	762	--	1,130	55.2	325	1,207	<10.0
	W-8A	8/5/09	13	--	--	--	196	31.5	501	1,915	<10.0
			16	12,600	895	--	303	51.9	861	3,455	<10.0
			21	14,800	1,170	--	--	--	--	--	--
Monitoring wells	MW-1	4/24/08 10/2/08 12/23/08 3/21/09 6/29/09	15-30	<50	<50	--	<0.500	<0.500	<0.500	<0.500	<0.500
				<50	65	--	<0.500	<0.500	<0.500	<0.500	<0.500
				<50	<50	--	<0.500	<0.500	<0.500	<0.500	<0.500
				<50	<50	--	<0.500	<0.500	<0.500	<0.500	0.5
				<50	59	--	<0.500	<0.500	<0.500	<0.500	<0.500
	MW-2	4/24/08 10/2/08 12/23/08 3/21/09 6/29/09	13-23	6,140	1,270	--	391	31.5	366	334.3	<20.0
				4,210	573	--	423	16	137	91.7	<5.00
				4,490	694	--	336	27.6	148	88.06	<4.00
				5,070	623	--	398	27.6	322	127.7	<4.00
				4,570	707	--	193	9.31	113	53.09	<2.50
	MW-3	4/24/08 10/2/08 12/23/08 3/21/09 6/29/09	12-22	1,730	506	--	<4.00	<4.00	229	<4.00	<4.00
				627	620	--	1.68	<0.500	67.8	<0.500	<0.500
				620	554	--	1.36	<0.500	80.5	<0.500	<0.500
				597	200	--	<2.00	<2.00	34.9	<2.00	<2.00
				547	234	--	1.33	<0.500	21.3	<0.500	<0.500

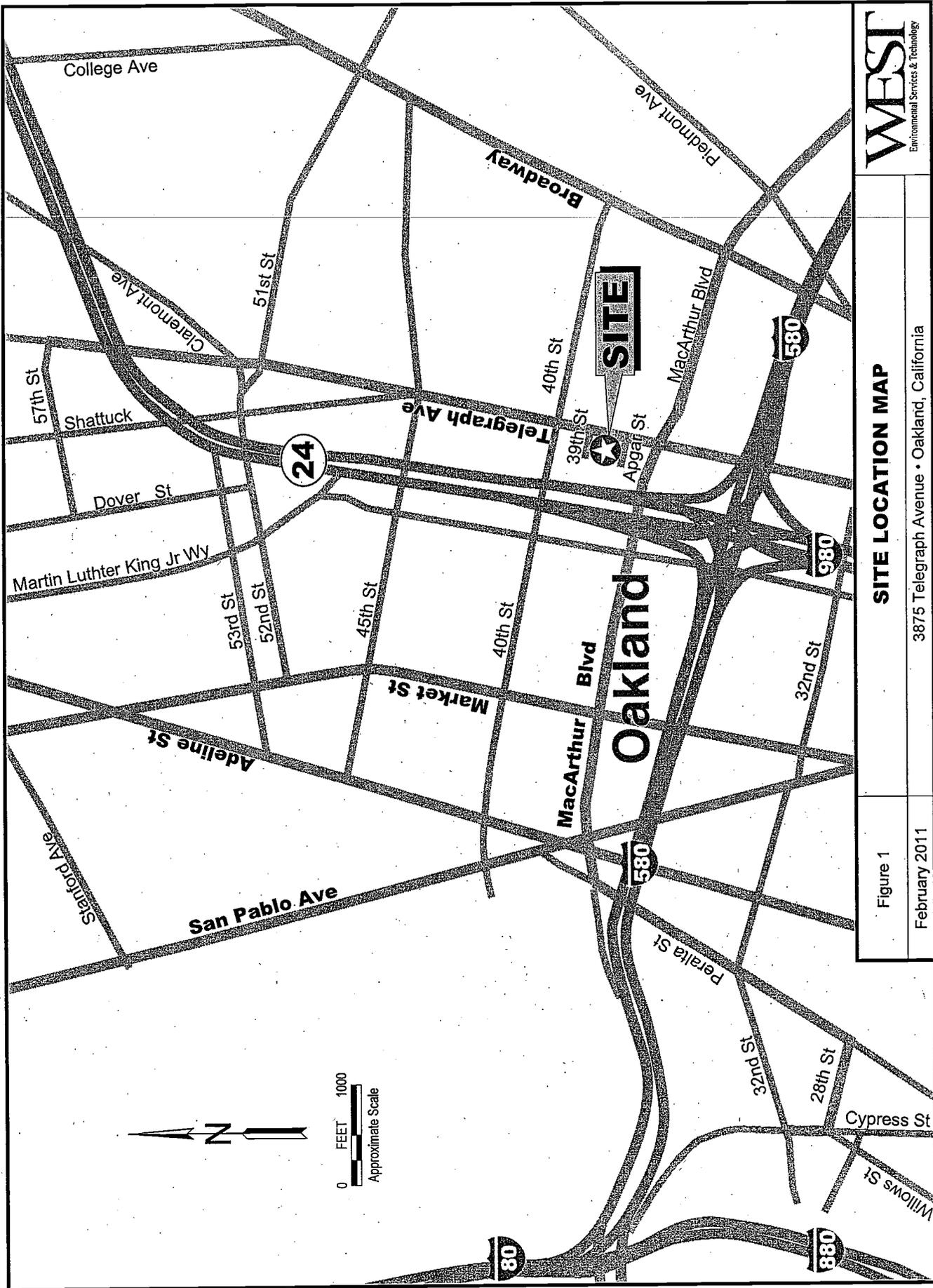
TABLE 5  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
3875 Telegraph Avenue  
Oakland, California

Location	Sample ID	Date	Depth (ft)	Petroleum Hydrocarbons			Petroleum-Related VOCs				
				TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE
				(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Monitoring wells	MW-4	4/24/08	12-22	7,290	2,390	--	<10.0	<10.0	656	27.7	<10.0
		10/2/08		5,800	958	--	<5.00	<5.00	106	<5.00	<5.00
		12/23/08		5,470	1,220	--	<2.50	<2.50	157	3.4	<2.50
		3/21/09		5,690	969	--	<5.00	<5.00	163	<5.00	<5.00
		6/29/09		5,460	1,190	--	<20.0	<20.0	52.5	<20.0	<20.0
Offsite Monitoring Wells	MW-5	1/31/11	8-18	6,720	--	--	1,940	24.2	327	486	--
	MW-6	1/31/11	8-18	1,400	--	--	25.5	1.25	41.4	6.93	--
				1,270	--	--	27.1	1.68	40.5	6.63	--
MW-7	1/31/11	7-17	2,370	--	--	350	277	137	497	--	
Numerical Water Quality Objectives				5	100	500	1	40	29	17	5

Notes:

- µg/l: micrograms per liter
- TPHg: Total Petroleum Hydrocarbons as Gasoline
- TPHd: Total Petroleum Hydrocarbons as Diesel
- TPHmo: Total Petroleum Hydrocarbons as Motor Oil
- MTBE: Methyl Tertiary Butyl Ether
- TMB: Trimethylbenzene
- PCE: Tetrachloroethene
- TCE: Trichloroethene
- DCE: Dichloroethene
- <50: Less than the method detection limit of 50
- not sampled/not analyzed

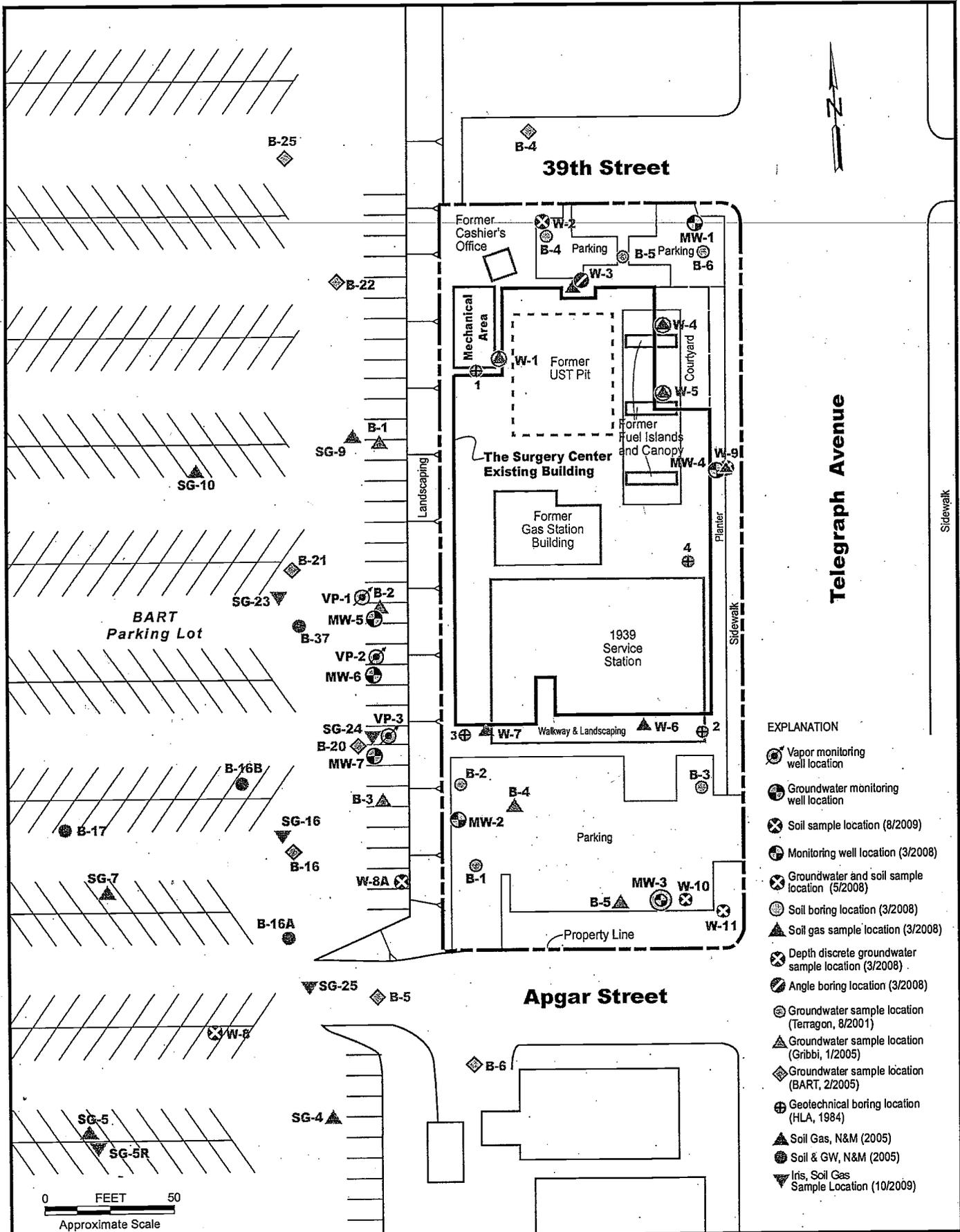
**FIGURES**



**SITE LOCATION MAP**

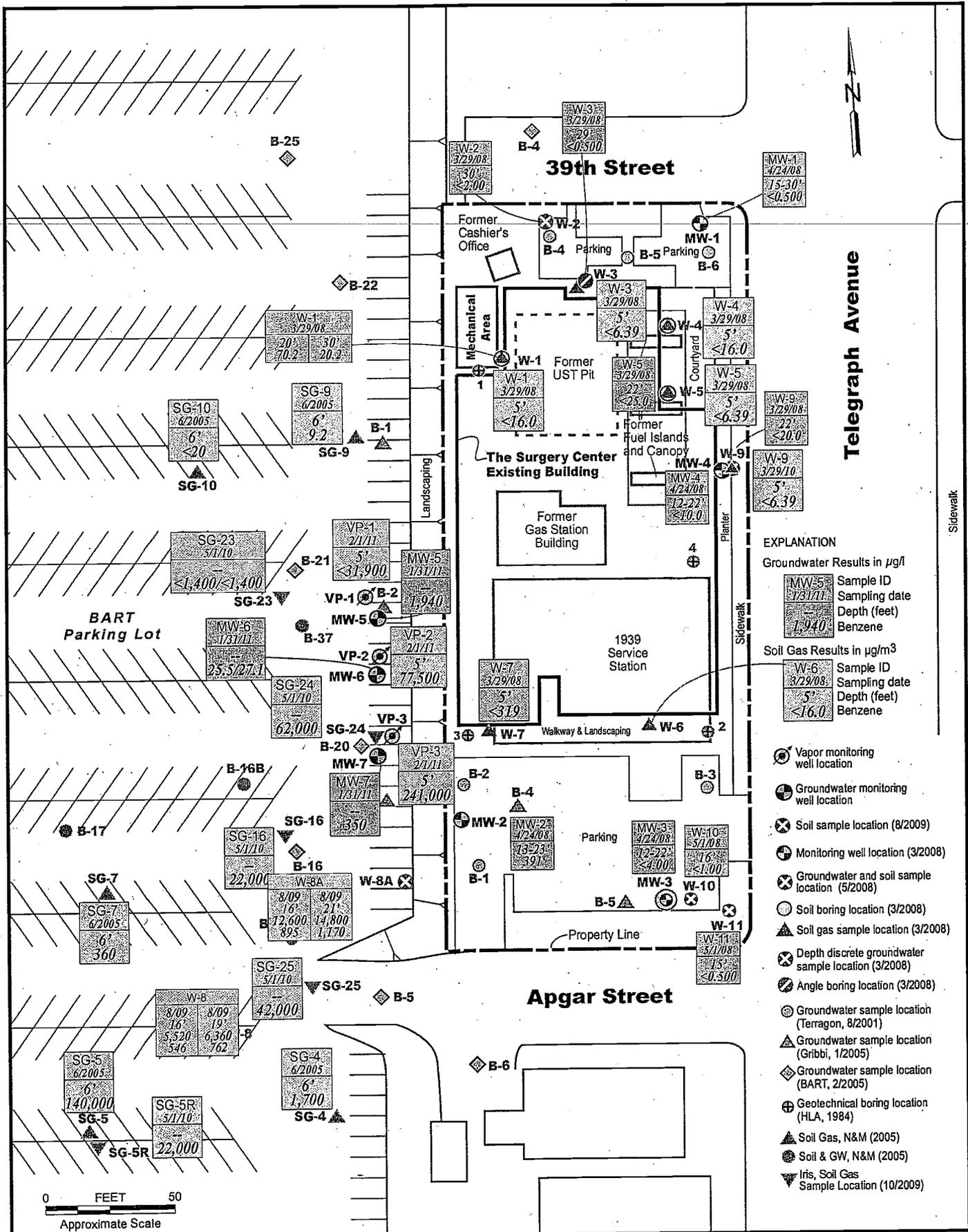
Figure 1  
February 2011

3875 Telegraph Avenue • Oakland, California



- EXPLANATION**
- ⊗ Vapor monitoring well location
  - ⊕ Groundwater monitoring well location
  - ⊗ Soil sample location (8/2009)
  - ⊕ Monitoring well location (3/2008)
  - ⊗ Groundwater and soil sample location (5/2008)
  - ⊕ Soil boring location (3/2008)
  - ▲ Soil gas sample location (3/2008)
  - ⊗ Depth discrete groundwater sample location (3/2008)
  - ⊕ Angle boring location (3/2008)
  - ⊕ Groundwater sample location (Terragon, 8/2001)
  - ▲ Groundwater sample location (Gribbi, 1/2005)
  - ⊕ Groundwater sample location (BART, 2/2005)
  - ⊕ Geotechnical boring location (HLA, 1984)
  - ▲ Soil Gas, N&M (2005)
  - ⊕ Soil & GW, N&M (2005)
  - ▼ Iris, Soil Gas Sample Location (10/2009)

0 FEET 50  
Approximate Scale



- EXPLANATION**
- Groundwater Results in  $\mu\text{g/l}$
- Sample ID
  - Sampling date
  - Depth (feet)
  - Benzene
- Soil Gas Results in  $\mu\text{g/m}^3$
- Sample ID
  - Sampling date
  - Depth (feet)
  - Benzene
- Vapor monitoring well location
  - Groundwater monitoring well location
  - Soil sample location (8/2009)
  - Monitoring well location (3/2008)
  - Groundwater and soil sample location (5/2008)
  - Soil boring location (3/2008)
  - Soil gas sample location (3/2008)
  - Depth discrete groundwater sample location (3/2008)
  - Angle boring location (3/2008)
  - Groundwater sample location (Terragon, 8/2001)
  - Groundwater sample location (Gribbi, 1/2005)
  - Groundwater sample location (BART, 2/2005)
  - Geotechnical boring location (HLA, 1984)
  - Soil Gas, N&M (2005)
  - Soil & GW, N&M (2005)
  - Iris, Soil Gas Sample Location (10/2009)

0 FEET 50  
Approximate Scale

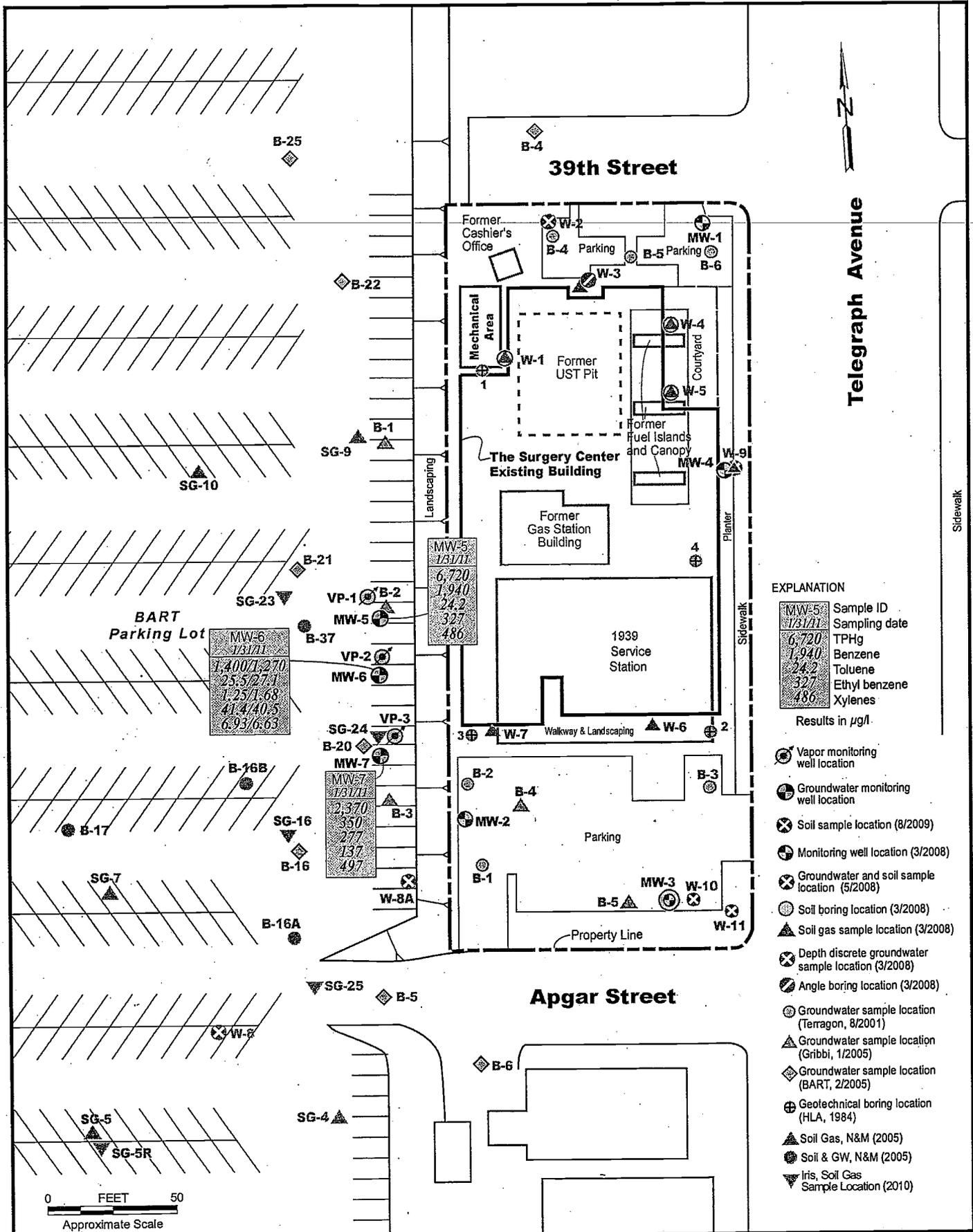
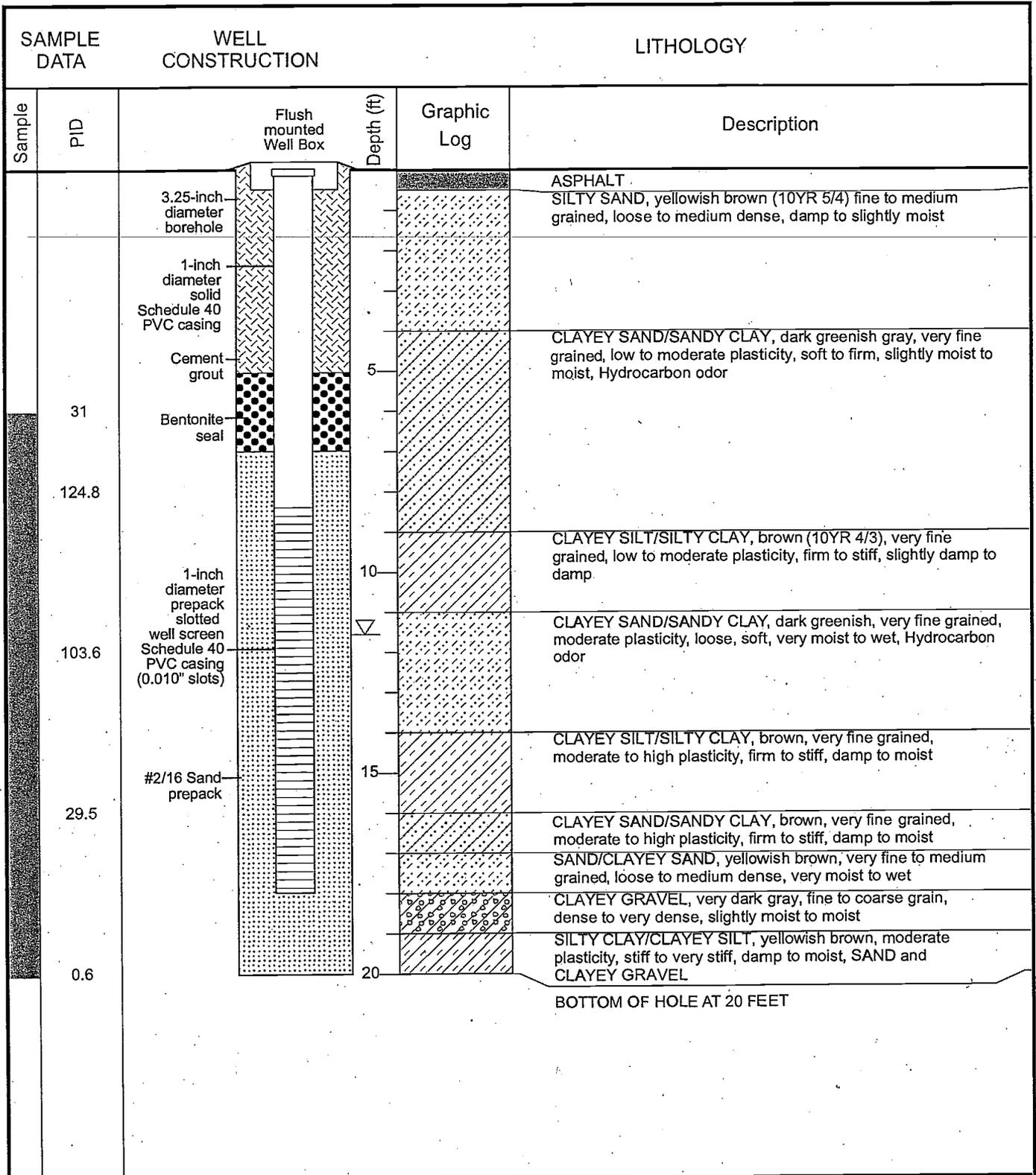


Figure 4  
February 2011

**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**  
3875 Telegraph Avenue • Oakland, California



**APPENDIX A**  
**BORING LOGS**



▽ Depth to water at time of drilling

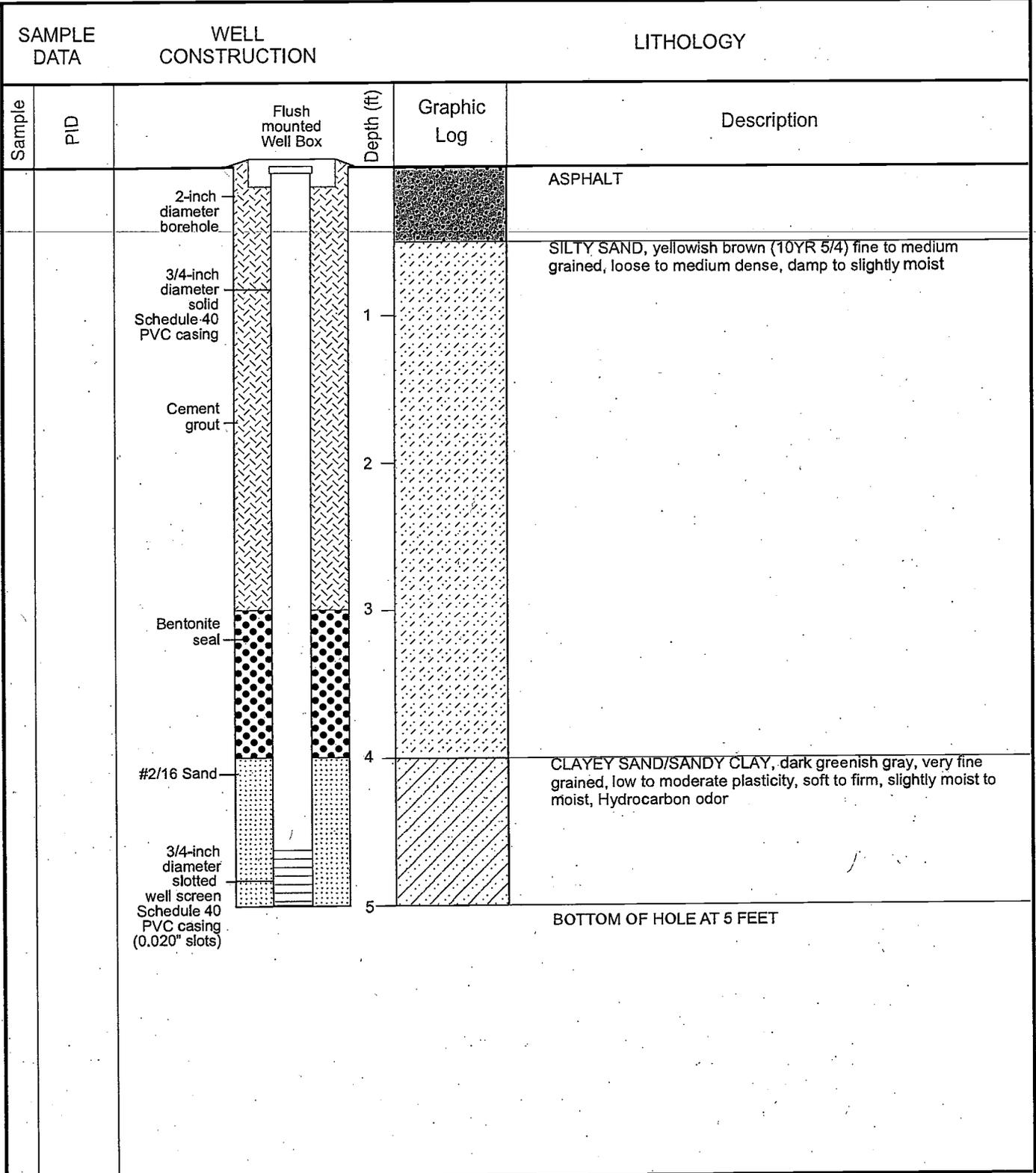


Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ



February 2011  
 Wickland  
 Oakland, California

**Soil Lithology and Well Construction  
 for Boring No. MW-5**

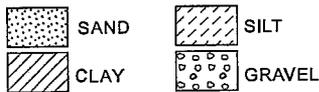
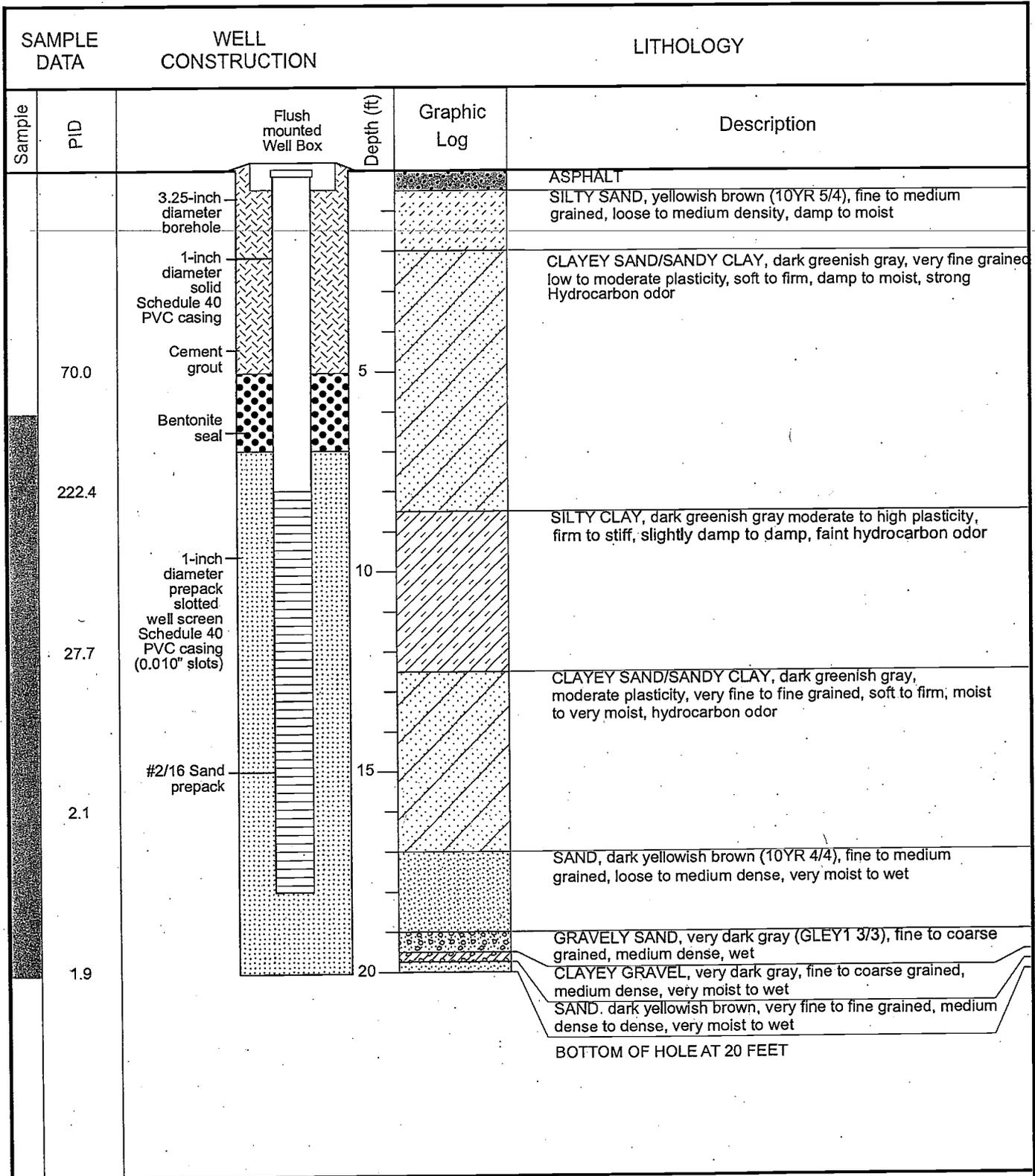


Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ



February 2011  
 Wickland  
 Oakland, California

**Soil Lithology and Well Construction  
 for Boring No. VP-1**

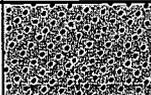
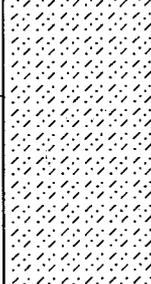
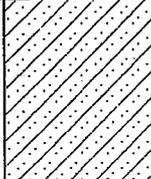
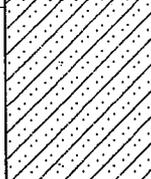
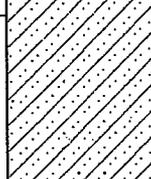
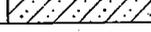


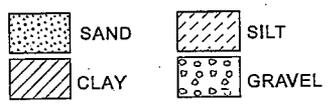
Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ



February 2011  
 Wickland  
 Oakland, California

**Soil Lithology and Well Construction  
 for Boring No. MW-6**

SAMPLE DATA		WELL CONSTRUCTION		LITHOLOGY		
Sample	PID		Flush mounted Well Box	Depth (ft)	Graphic Log	Description
			2-inch diameter borehole			ASPHALT
			3/4-inch diameter solid Schedule 40 PVC casing	1		SILTY SAND, yellowish brown (10YR 5/4), fine to medium grained, loose to medium density, damp to moist
			Cement grout	2		CLAYEY SAND/SANDY CLAY, dark greenish gray, very fine grained low to moderate plasticity, soft to firm, damp to moist, strong Hydrocarbon odor
			Bentonite seal	3		
			#2/16 Sand	4		
			3/4-inch diameter slotted well screen Schedule 40 PVC casing (0.020" slots)	5		
						BOTTOM OF HOLE AT 5 FEET



Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ

SAMPLE DATA		WELL CONSTRUCTION		LITHOLOGY	
Sample	PID		Depth (ft)	Graphic Log	Description
		3.25-inch diameter borehole			ASPHALT
		1-inch diameter solid Schedule 40 PVC casing			SILTY SAND, yellowish brown, fine to medium grained, loose to medium dense, dry to slightly moist
	8.7	Cement grout	5		SANDY CLAY/CLAYEY SAND, dark greenish gray, low to moderate plasticity, firm to stiff, slightly damp to damp, Hydrocarbon odor
		Bentonite seal			CLAYEY GRAVEL WITH SAND, very dark gray, fine to coarse grained, medium dense, damp to moist
	415				SANDY CLAY/CLAYEY SAND, dark greenish gray, low to moderate plasticity, very fine to fine grained, firm to stiff, moist to very moist, Hydrocarbon odor
	1024	1-inch diameter prepack slotted well screen Schedule 40 PVC casing (0.010" slots)	10		SAND WITH CLAYEY GRAVEL, very dark greenish brown fine to coarse grained, medium dense, very moist to wet, very strong Hydrocarbon odor
	265				CLAYEY GRAVEL, dark greenish brown, fine to coarse grained, dense to very dense, moist to very moist, Hydrocarbon odor
	3.0	#2/16 Sand prepack	15		CLAYEY SILT/SILTY CLAY, dark yellowish brown, moderate to high plasticity, firm to stiff, damp to moist
					SAND/CLAYEY SAND, very dark gray, fine to medium grained, loose to medium dense, wet, Hydrocarbon odor
					CLAYEY SILT/SILTY CLAY, dark yellowish brown, moderate to high plasticity, firm to stiff, damp to moist
					CLAYEY GRAVEL, yellowish brown, fine to coarse grained, very dense, slightly damp to damp
	15.1		20		BOTTOM OF HOLE AT 20 FEET



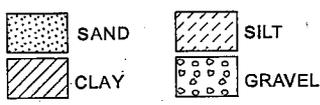
Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ



February 2011  
 Wickland  
 Oakland, California

### Soil Lithology and Well Construction for Boring No. MW-7

SAMPLE DATA		WELL CONSTRUCTION		LITHOLOGY	
Sample	PID		Depth (ft)	Graphic Log	Description
		2-inch diameter borehole			ASPHALT
		3/4-inch diameter solid Schedule 40 PVC casing	1		SILTY SAND, yellowish brown, fine to medium grained, loose to medium dense, dry to slightly moist
		Cement grout	2		SANDY CLAY/CLAYEY SAND, dark greenish gray, low to moderate plasticity, firm to stiff, slightly damp to damp, Hydrocarbon odor
		Bentonite seal	3		
		#2/16 Sand	4		
		3/4-inch diameter slotted well screen Schedule 40 PVC casing (0.020" slots)	5		
BOTTOM OF HOLE AT 5 FEET					



Drilling method: Geoprobe  
 Sampling method: Macro Core  
 Drilling date: 1/21/2011  
 Geologist: JZ

**APPENDIX B**  
**FIELD DATA SHEETS**

WEST

WELL DEVELOPMENT

GROUND WATER QUALITY SAMPLE COLLECTION  
FIELD DATA SHEET

Location ID: MW-5 Date: 1.25.11

Sampled By: JZ Sampling Time: \_\_\_\_\_

Project/Site Name: Wickland Oakland Project No: \_\_\_\_\_

Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_

Sampling Method: Peristaltic

Weather (Skies, temperature, wind): Sunny

Well Diameter (in) 1"

Well Elevation (ft) \_\_\_\_\_

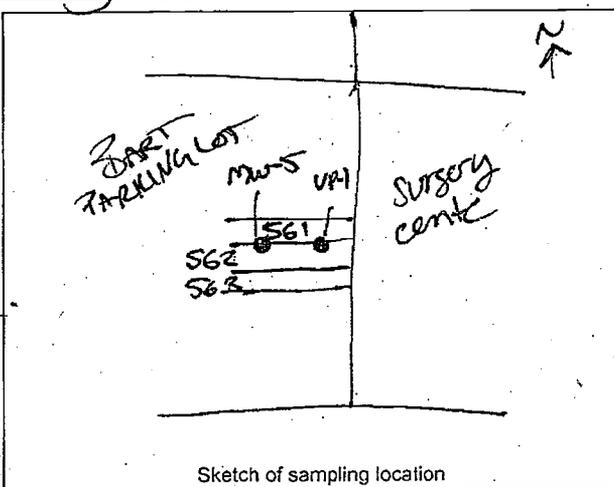
Well Casing Depth (ft) 18.2

Depth to Water (ft) 6.67

Standing Water Volume (gal) 0.473 gal

Purge Rate: (gal/min) \_\_\_\_\_

Purge Method: \_\_\_\_\_



Observations/Comments: \_\_\_\_\_

Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
14:28	9.6	0.1	18.7	7.38	590	30.3	348.9	32.34	
14:34	16.85	<del>0.1</del> 1.5	17.8	6.97	604	35.5	258.6	24.55	14:35 went dry 14:46 restart
14:47	17.15	<del>0.1</del> 1.5	18.1	6.98	520	42.8	214.1	20.07	14:48:30 went dry

0.75-inch casing = 0.023 gal/ft; 1-inch casing = 0.041 gal/ft; 2-inch casing = 0.16 gal/ft;  
4-inch casing = 0.65 gal/ft; 6 inch casing = 1.47 gal/ft; 8-inch casing = 2.61 gal/ft  
7.48 gallons per cubic foot

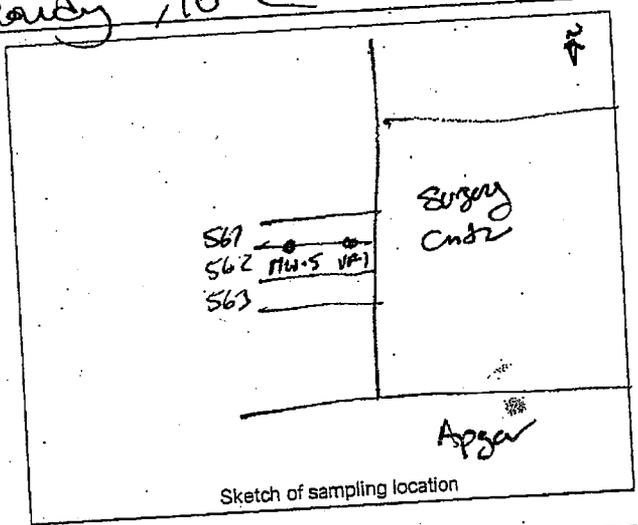
WEST

# Well Development GROUND WATER QUALITY ~~SAMPLE COLLECTION~~ FIELD DATA SHEET

Location ID: MW-5 Date: 1-29-11  
 Sampled By: JZ Sampling Time: NA  
 Project/Site Name: Wickland Acker Project No: \_\_\_\_\_  
 Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_  
 Sampling Method: per State

Weather (Skies, temperature, wind): cloudy, 10°C

Well Diameter (in) 1"  
 Well Elevation (ft) \_\_\_\_\_  
 Well Casing Depth (ft) 18.2  
 Depth to Water (ft) : 7.15  
 Standing Water Volume (gal) \_\_\_\_\_  
 Purge Rate: (gal/min) \_\_\_\_\_  
 Purge Method: \_\_\_\_\_



Observations/Comments: \_\_\_\_\_  
 Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
12:28	13.05	0.5	17.3	6.71	527	53.0	139.8	13.49	
12:33	16.5	1.0	18.0	6.45	507	41.1	127.0	11.66	12:35 well dng 12:42 PTW=17.5
12:46	-	1.5	18.1	6.91	469	32.5	160.8	15.56	went dry.

2-inch casing = 0.16 gallons/foot  
 4-inch casing = 0.65 gallons/foot  
 6 inch casing = 1.47 gallons/foot  
 GW-Field Data Sht-1\_revised.doc

WELL DEVELOPMENT  
GROUND WATER QUALITY SAMPLE COLLECTION  
FIELD DATA SHEET

Location ID: MW-6 Date: 1.25.11

Sampled By: JZ Sampling Time: NA

Project/Site Name: Wickland Oakland Project No: \_\_\_\_\_

Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_

Sampling Method: Resistivity

Weather (Skies, temperature, wind): Sunny

Well Diameter (in) 1"

Well Elevation (ft) \_\_\_\_\_

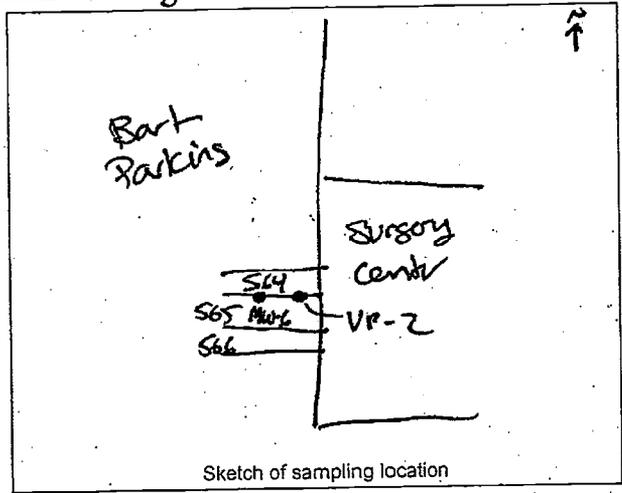
Well Casing Depth (ft) 18.2

Depth to Water (ft) 6.45

Standing Water Volume (gal) 0.482

Purge Rate: (gal/min) \_\_\_\_\_

Purge Method: \_\_\_\_\_



Observations/Comments: \_\_\_\_\_

Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
14:54	7.0	0.1	18.3	6.98	511	77	2058	19.58	dk gray
15:02	6.98	0.7	18.5	6.89	413	453	179.6	16.55	bathtub died 15:07 c-n only cycle 2
15:16	6.51	1.2	17.5	6.94	421	577	18.1	15.0	

WEST

well development

GROUND WATER QUALITY SAMPLE COLLECTION  
FIELD DATA SHEET

Location ID: MW-6

Date: 1-29-91

Sampled By: JE

Sampling Time: NA

Project/Site Name: Wickland Oakland Project No: \_\_\_\_\_

Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_

Sampling Method: peristaltic

Weather (Skies, temperature, wind): Sunny Cloudy 10°C

Well Diameter (in) 1"

Well Elevation (ft) \_\_\_\_\_

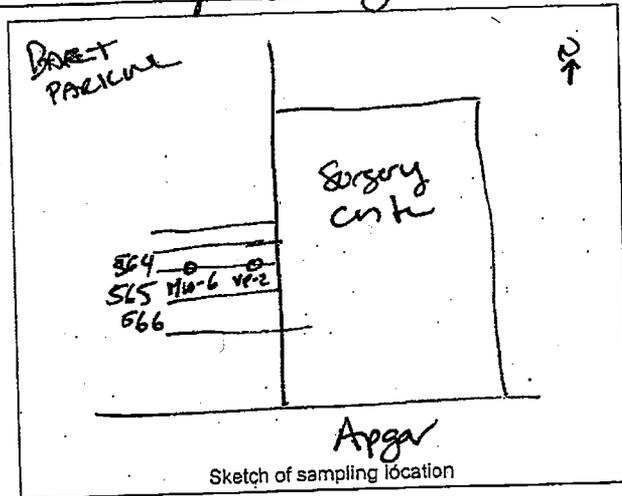
Well Casing Depth (ft) 18.2

Depth to Water (ft) 6.60

Standing Water Volume (gal) \_\_\_\_\_

Purge Rate: (gal/min) \_\_\_\_\_

Purge Method: \_\_\_\_\_



Observations/Comments: \_\_\_\_\_

Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
11:49	7.7	0.7	18.5	5.63	474	307	117.7	10.99	water gray at start
11:54	7.61	1.25	18.5	6.21	466	132	119.5	11.21	gasoline odor H/C
11:58	7.50	2.0	18.6	6.36	452	251	116.5	10.83	
12:02	7.42	2.5	18.6	6.38	449	207	116.7	10.89	
12:06	7.8	3.2	18.6	6.58	442	172	115.2	10.79	
12:09	7.74	3.7	18.7	6.41	440	120	113.7	10.61	

2-inch casing = 0.16 gallons/foot

4-inch casing = 0.65 gallons/foot

6 inch casing = 1.47 gallons/foot

7.48 gallons per cubic-foot

GW-Field Data Sheet revised.doc

WEST

WELL DEVELOPMENT  
GROUND WATER QUALITY SAMPLE COLLECTION  
FIELD DATA SHEET

Location ID: MW-7

Date: 1.29.11

Sampled By: [Signature]

Sampling Time: NA

Project/Site Name: Wickland Oakland

Project No: \_\_\_\_\_

Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_

Sampling Method: peristaltic

Weather (Skies, temperature, wind): overcast / foggy 90C

Well Diameter (in) 1"

Well Elevation (ft) \_\_\_\_\_

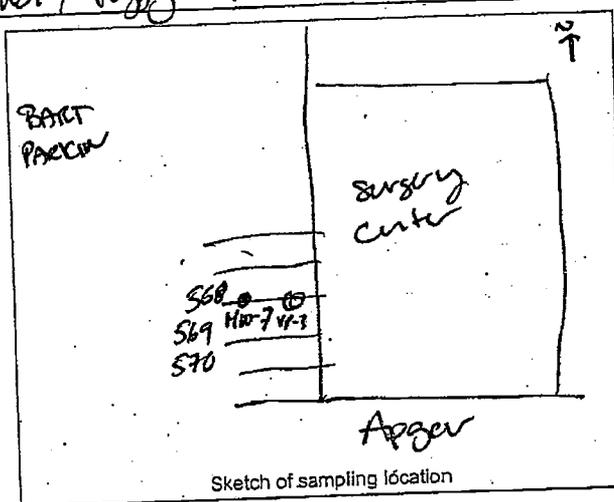
Well Casing Depth (ft) 17.2

Depth to Water (ft) 6.61 / 6.77  
1.25.11 / 1.29.11

Standing Water Volume (gal) 0.434

Purge Rate: (gal/min) \_\_\_\_\_

Purge Method: \_\_\_\_\_



Observations/Comments: \_\_\_\_\_

Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
11:05	8.05	0.4	17.9	6.66	712	701	135.7	12.93	brown silt/sand clear water
11:10	8.10	1.0	18.3	6.06	511		133.1		H/C Oxidation odour
11:15	8.81	1.5	18.1	6.53	531	365	135.6	12.91	
11:23	8.10	3.0	18.8	6.54	422	112	125.9	11.75	
11:26	7.95	3.5	18.8	6.48	414	67.4	123.8	11.57	
11:30	7.90	4.0	18.8	6.15	412	78.9	123.8	11.51	

2-inch casing = 0.16 gallons/foot

4-inch casing = 0.65 gallons/foot

6 inch casing = 1.47 gallons/foot

7.48 gallons per cubic foot

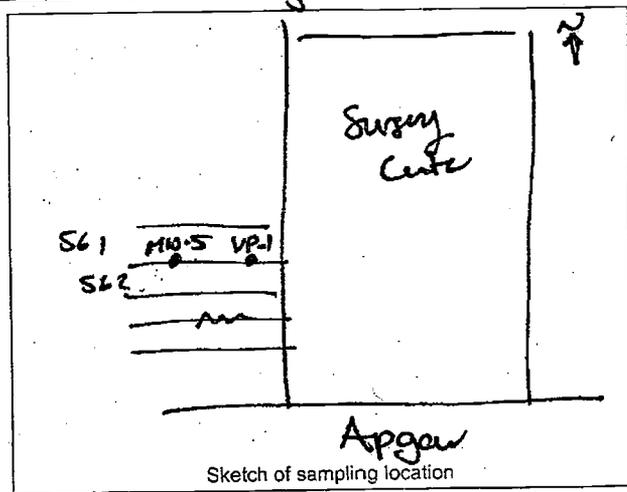
CW-Field Data Sh-1 revised.doc

EST

## GROUND WATER QUALITY SAMPLE COLLECTION FIELD DATA SHEET

Location ID: MW-5 Date: 1-31-11  
 Sampled By: JZ Sampling Time: 13:50  
 Project/Site Name: Wicklow, Oakbrook Project No: \_\_\_\_\_  
 Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_  
 Sampling Method: low flow  
 Weather (Skies, temperature, wind): Clear sunny 15°C

Well Diameter (in) 1"  
 Well Elevation (ft) \_\_\_\_\_  
 Well Casing Depth (ft) 18.2  
 Depth to Water (ft) 7.15  
 Standing Water Volume (gal) \_\_\_\_\_  
 Purge Rate: (gal/min) \_\_\_\_\_  
 Purge Method: low flow



Observations/Comments: \_\_\_\_\_

### Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
13:37	7.80	0.1	16.8	7.17	423	2.41	108.91	11.05	
13:36	9.25	0.25	16.6	6.87	419		108.95	10.45	
13:39	10.20	0.4	16.3	6.86	425	1.49	110.3	10.76	
13:42	11.2	0.55	16.4	6.70	422	1.28	112.9	11.00	
13:45	11.21	0.7	16.4	6.69	422		110.1	10.73	
13:48	11.35	0.85	16.3	6.64	421	0.76	108.2	10.77	

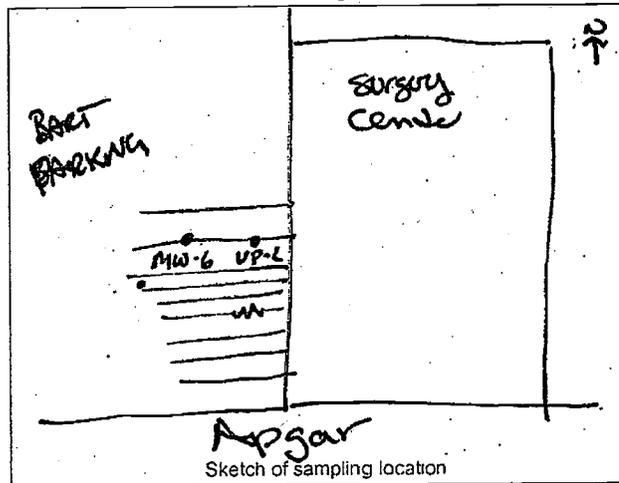
0.75-inch casing = 0.023 gal/ft; 1-inch casing = 0.041 gal/ft; 2-inch casing = 0.16 gal/ft;  
 4-inch casing = 0.65 gal/ft; 6-inch casing = 1.47 gal/ft; 8-inch casing = 2.61 gal/ft.  
 7.48 gallons per cubic foot

WEST

## GROUND WATER QUALITY SAMPLE COLLECTION FIELD DATA SHEET

Location ID: MW-6 Date: 1.31.11  
 Sampled By: West/JZ Sampling Time: 12:25  
 Project/Site Name: Wickland, Oakland Project No: BACT PARKING  
 Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_  
 Sampling Method: low flow  
 Weather (Skies, temperature, wind): Clear Sunny 15°C

Well Diameter (in) 1"  
 Well Elevation (ft) \_\_\_\_\_  
 Well Casing Depth (ft) 18.2  
 Depth to Water (ft) 6.41  
 Standing Water Volume (gal) \_\_\_\_\_  
 Purge Rate: (gal/min) \_\_\_\_\_  
 Purge Method: low flow



Observations/Comments: Tubing mid screen (5' above EDH)  
Collected DDP = MW-8 (10am)  
 Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
12:09	6.64	0.1	16.4	6.52	452	48.6	114.4	11.34	
12:12	6.61	0.3	17.1	6.53	438	27.4	110.7	10.64	
12:15	6.60	0.5	17.0	6.56	420	6.64	106.8	10.34	
12:18	6.60	0.7	17.2	6.54	412	6.47	102.8	9.92	
12:21	6.59	0.9	17.1	6.59	408	4.57	102.3	9.88	
12:24	6.60	1.1	17.1	6.57	401	3.43	97.4	9.58	

0.75-inch casing = 0.023 gal/ft; 1-inch casing = 0.041 gal/ft; 2-inch casing = 0.16 gal/ft;  
 4-inch casing = 0.65 gal/ft; 6-inch casing = 1.47 gal/ft; 8-inch casing = 2.61 gal/ft.  
 7.48 gallons per cubic foot

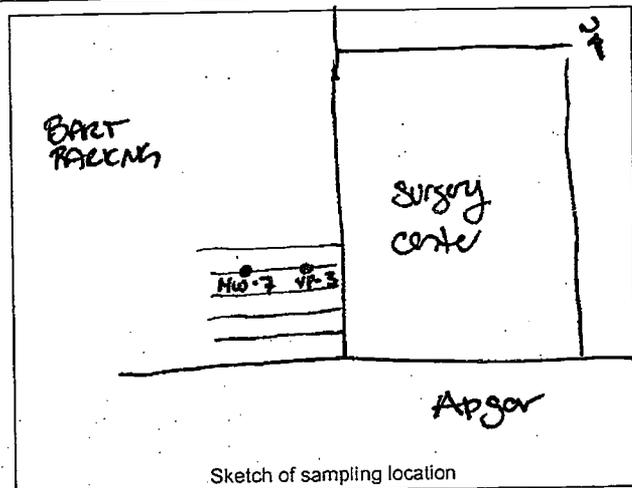
WEST

## GROUND WATER QUALITY SAMPLE COLLECTION FIELD DATA SHEET

Location ID: MW-7 Date: 1.31.11  
 Sampled By: JZ Sampling Time: 11:45  
 Project/Site Name: Wickland. Oakland Project No: BART PARKING  
 Location type: monitoring well, supply well, soil boring, other \_\_\_\_\_  
 Sampling Method: low flow peristaltic  
 Weather (Skies, temperature, wind): Clear 15°C

Well Diameter (in) 1"  
 Well Elevation (ft) \_\_\_\_\_  
 Well Casing Depth (ft) 17.2  
 Depth to Water (ft) 6.57

Standing Water Volume (gal) \_\_\_\_\_  
 Purge Rate: (gal/min) \_\_\_\_\_  
 Purge Method: low flow

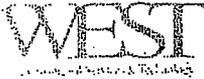


Observations/Comments: Tubing mid screen (5' above base)

### Measurements of Water Levels and Field Parameters:

Time (24 hr)	Depth to Water (ft)	Purge Volume (gal)	Temp (°C)	PH (S.U.)	E. Cond. (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Remarks
11:25	6.84	0.1	16.6	5.96	614	41.7	161.5	15.64	H/c ader
11:28	7.05	0.25	17.2	6.32	477	50.5	138.2	13.32	
11:31	6.95	0.4	17.3	6.40	423	28.8	134.1	12.85	
11:34	6.97	0.55	17.5	6.50	396	15.2	133.3	12.73	
11:37	6.90	0.7	17.5	6.48	382	13.6	130.3	12.42	
11:40	6.90	0.86	17.4	6.55	377	12.1	123.1	11.85	
11:43	6.90	1.0	17.4	6.53	373	3.78	119.4	11.45	

0.75-inch casing = 0.023 gal/ft; 1-inch casing = 0.041 gal/ft; 2-inch casing = 0.16 gal/ft;  
 4-inch casing = 0.65 gal/ft; 6-inch casing = 1.47 gal/ft; 8-inch casing = 2.61 gal/ft.  
 7.48 gallons per cubic foot



711 Grand Avenue, Suite 220  
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 415.460.6770 • Fax 415.460.6771  
 main@w-e-s-t.com

**SOIL GAS SAMPLING AND  
 INTRINSIC PERMEABILITY TESTING  
 FIELD DATA SHEET**

Date: Feb. 1, 2011 Sampled by: \_\_\_\_\_

Project: Wickland Oakland

Weather Conditions: \_\_\_\_\_

**SOIL GAS SAMPLING**

Summa Canister ID: S-230 Sample time: 11:15 / 11:25

Canister atmosphere before sampling: -30 (in. water)

Canister atmosphere after sampling: 0 (in. water)

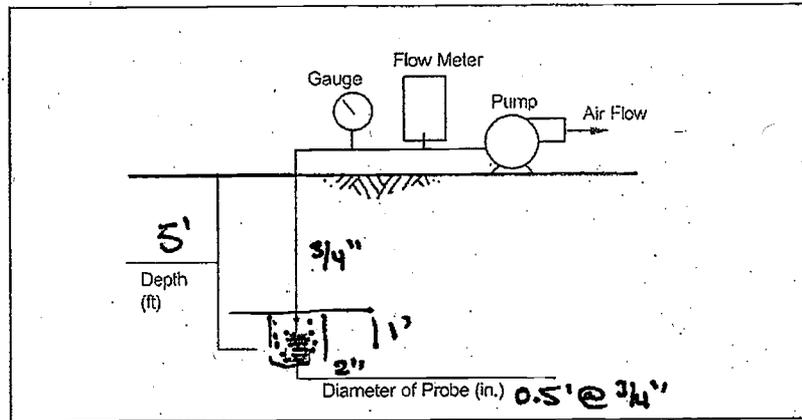
Tubing I.D.: \_\_\_\_\_ Length of Tubing (ft): \_\_\_\_\_

Tubing Volume (L/ft): 0.009 Purge volume (L): \_\_\_\_\_

**INTRINSIC  
 PERMEABILITY  
 TESTING**

Purge  
 Vol  
 1  
 3  
 7

Time PID  
 1.5 min 0.6  
 4.7 min 0.5  
 10 min 0.3  
 10:45 end purge test



	Test 1	Test 2	Test 3
Vacuum (in. water)	<del>0.5</del> 0.25	0.4	0.6
Flow Rate (cc/min)	20	30	45
Length of Test (sec.)	90	90	90

Observations: \_\_\_\_\_

Canister Sampling Field Data Sheet

SUMMA AIR SAMPLING WORK SHEET

Site: Wicklind, Oakland  
 Samplers: JZ  
 Date: Feb 1 2011

Site#: Max Arthur BART Parking Lot  
 Work Assignment Manager: \_\_\_\_\_  
 Project Leader: \_\_\_\_\_

Sample #	VP-1	VP-2	VP-2	VP-3	
Location					
SUMMA ID	S-230	S-435	S-520	S-353	
Orifice Used					
Analysis/Method	TO-14-VOCs	TO-14-VOCs	TO-14-VOCs	TO-14-VOCs	TO-14-VOCs
Time (Start)	11:15	11:49	11:55	12:16	
Time (Stop)	11:25		12:07	12:26	
Total Time	10		12	10	
SUMMA WENT TO AMBIENT	<input checked="" type="radio"/> YES/ <input type="radio"/> NO	YES/NO	<input checked="" type="radio"/> YES/ <input type="radio"/> NO	<input checked="" type="radio"/> YES/ <input type="radio"/> NO	YES/NO
<i>init</i> Pressure Gauge	30		30	30	
<i>pm</i> Pressure Gauge	0		0	0	
Flow Rate (Pre)					
Flow Rate (Post)					
Flow Rate (Average)					
MET Station On-site? Y / N					
General Comments:					

**APPENDIX C**  
**LABORATORY DATA CERTIFICATES**  
**AND CHAIN-OF-CUSTODY FORMS**

# K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.  
Santa Rosa CA 95403  
Phone: 707 527 7574  
FAX: 707 527 7879

## TRANSMITTAL

**DATE:** 2/8/2011

**TO:** MR. PETER MORRIS  
WEST ENVIRONMENTAL S&T  
711 GRAND AVENUE, SUITE 220  
SAN RAFAEL, CA 94901

Phone: 415-460-6770  
Fax: 415-460-6771  
Email: main@westenvironmental.com

**ACCT:** 9946  
**PROJ:** WICKLAND.OAKLAND

**FROM:** Richard A. Kage1, Ph.D.  
Laboratory Director

**SUBJECT:** LABORATORY RESULTS FOR YOUR PROJECT WICKLAND.OAKLAND

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
MW-5	WATER	01/31/11	13:50	89104
MW-6	WATER	01/31/11	12:25	89105
MW-7	WATER	01/31/11	11:45	89106
MW-8	WATER	01/31/11	10:00	89107
TRIP BLANK	WATER	01/31/11	NA	89108

The above listed sample group was received on 02/01/11 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.  
Thank you for this opportunity to be of service.

**K PRIME, INC.**  
**LABORATORY REPORT**

K PRIME PROJECT: 9946  
CLIENT PROJECT: WICKLAND.OAKLAND

METHOD: GRO-GASOLINE RANGE ORGANICS  
REFERENCE: EPA 8015B

SAMPLE TYPE: WATER  
UNITS: mg/L

SAMPLE ID	LAB NO.	DATE	TIME	BATCH ID	DATE	MRL	SAMPLE CONC	GRO PATTERN
		SAMPLED	SAMPLED		ANALYZED			
MW-5	89104	1/31/2011	13:50	020111W1	2/2/2011	0.250	6.72	
MW-6	89105	1/31/2011	12:25	020111W1	2/2/2011	0.050	1.40	
MW-7	89106	1/31/2011	11:45	020111W1	2/2/2011	0.050	2.37	
MW-8	89107	1/31/2011	10:00	020111W1	2/2/2011	0.050	1.27	

**NOTES:**

- ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
- NA - NOT APPLICABLE OR AVAILABLE
- MRL - METHOD REPORTING LIMIT
- AE - UNKNOWN HYDROCARBON WITH A SINGLE PEAK
- AN - UNKNOWN HYDROCARBON WITH SEVERAL PEAKS
- AS - HEAVIER HYDROCARBON THAN GASOLINE CONTRIBUTING TO GRO VALUE
- CO - HYDROCARBON RESPONSE IN GASOLINE RANGE BUT DOES NOT RESEMBLE GASOLINE

APPROVED BY:       
DATE: 02/07/2011

**K PRIME, INC.**  
LABORATORY REPORT

K PRIME PROJECT: 9946  
CLIENT PROJECT: WICKLAND.OAKLAND

SAMPLE ID: MW-5  
LAB NO: 89104  
DATE SAMPLED: 1/31/2011  
TIME SAMPLED: 13:50  
BATCH #: 020111W1  
DATE ANALYZED: 2/2/2011

METHOD: BTEX  
REFERENCE: EPA 5030/8021

SAMPLE TYPE: WATER  
UNITS: ug/L

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	2.50	.1940
TOLUENE	108-88-3	2.50	24.2
ETHYLBENZENE	100-41-4	2.50	327
XYLENE (M+P)	1330-20-7	2.50	632
XYLENE (O)	1330-20-7	2.50	146

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
NA - NOT APPLICABLE OR AVAILABLE

APPROVED BY:       
DATE: 02/07/2011

**K PRIME, INC.**  
**LABORATORY REPORT**

K PRIME PROJECT: 9946  
CLIENT PROJECT: WICKLAND.OAKLAND

SAMPLE ID: MW-6  
LAB NO: 89105  
DATE SAMPLED: 1/31/2011  
TIME SAMPLED: 12:25  
BATCH #: 020111W1  
DATE ANALYZED: 2/2/2011

METHOD: BTEX  
REFERENCE: EPA 5030/8021

SAMPLE TYPE: WATER  
UNITS: ug/L

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	0.500	25.5
TOLUENE	108-88-3	0.500	1.25
ETHYLBENZENE	100-41-4	0.500	41.4
XYLENE (M+P)	1330-20-7	0.500	6.14
XYLENE (O)	1330-20-7	0.500	0.785

**NOTES:**

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
NA - NOT APPLICABLE OR AVAILABLE

APPROVED BY: Uth  
DATE: 02/07/2011

**K PRIME, INC.**  
LABORATORY REPORT

K PRIME PROJECT: 9946  
CLIENT PROJECT: WICKLAND.OAKLAND

SAMPLE ID: MW-7  
LAB NO: 89106  
DATE SAMPLED: 1/31/2011  
TIME SAMPLED: 11:45  
BATCH #: 020111W1  
DATE ANALYZED: 2/2/2011

METHOD: BTEX  
REFERENCE: EPA-5030/8021

SAMPLE TYPE: WATER  
UNITS: ug/L

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	0.500	350
TOLUENE	108-88-3	0.500	277
ETHYLBENZENE	100-41-4	0.500	137
XYLENE (M+P)	1330-20-7	0.500	351
XYLENE (O)	1330-20-7	0.500	146

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
NA - NOT APPLICABLE OR AVAILABLE

APPROVED BY:       
DATE: 02/07/2011

**K PRIME, INC.**  
LABORATORY REPORT

K PRIME PROJECT: 9946  
CLIENT PROJECT: WICKLAND.OAKLAND

SAMPLE ID: MW-8  
LAB NO: 89107  
DATE SAMPLED: 1/31/2011  
TIME SAMPLED: 10:00  
BATCH #: 020111W1  
DATE ANALYZED: 2/2/2011

METHOD: BTEX  
REFERENCE: EPA 5030/8021

SAMPLE TYPE: WATER  
UNITS: ug/L

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	0.500	27.1
TOLUENE	108-88-3	0.500	1.68
ETHYLBENZENE	100-41-4	0.500	40.5
XYLENE (M+P)	1330-20-7	0.500	5.92
XYLENE (O)	1330-20-7	0.500	0.708

**NOTES:**

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
NA - NOT APPLICABLE OR AVAILABLE

APPROVED BY:         

DATE: 02/07/2011

**K PRIME, INC.**  
**LABORATORY QUALITY CONTROL REPORT**

METHOD BLANK ID: B020111W1  
 SAMPLE TYPE: WATER

METHOD: GRO-GASOLINE RANGE ORGANICS  
 REFERENCE: EPA 8015B

BATCH #: 020111W1  
 DATE EXTRACTED: 2/1/2011  
 DATE ANALYZED: 2/1/2011

UNITS: mg/L

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
TPH-G	0.050	ND

SAMPLE ID: L020111W1  
 DUPLICATE ID: D020111W1  
 BATCH #: 020111W1  
 SAMPLE TYPE: WATER  
 UNITS: mg/L

DATE EXTRACTED: 2/1/2011  
 DATE ANALYZED: 2/1/2011

**ACCURACY (MATRIX SPIKE)**

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
TPH-G	0.250	ND	0.227	91	60-140

**PRECISION (SPIKE DUPLICATE)**

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
TPH-G	0.050	0.227	0.225	0.9	±20

NOTES:  
 ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
 NA - NOT APPLICABLE

**K PRIME, INC.**  
**LABORATORY QUALITY CONTROL REPORT**

METHOD BLANK ID: B020111W1  
 BATCH #: 020111W1  
 DATE ANALYZED: 2/1/2011

METHOD: BTEX  
 REFERENCE: EPA 5030/8021

SAMPLE TYPE: WATER  
 UNITS: µg/L

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	0.500	ND
TOLUENE	108-88-3	0.500	ND
ETHYLBENZENE	100-41-4	0.500	ND
XYLENE (M+P)	1330-20-7	0.500	ND
XYLENE (O)	1330-20-7	0.500	ND

SAMPLE ID: L020111W1  
 DUPLICATE ID: D020111W1  
 BATCH #: 020111W1  
 DATE ANALYZED: 2/1/2011

METHOD: BTEX  
 REFERENCE: EPA 5030/8021

SAMPLE TYPE: WATER  
 UNITS: µg/L

**ACCURACY (MATRIX SPIKE)**

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
BENZENE	25.0	ND	22.9	92	60-140
TOLUENE	25.0	ND	24.0	96	60-140

**PRECISION (SPIKE DUPLICATE)**

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
BENZENE	0.500	22.9	22.3	2.7	±20
TOLUENE	0.500	24.0	23.2	3.4	±20

NOTES:  
 ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT  
 NA - NOT AVAILABLE OR APPLICABLE



# K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.  
Santa Rosa CA 95403  
Phone: 707 527 7574  
FAX: 707 527 7879

## TRANSMITTAL

**DATE:** 2/17/2011

**TO:** MR. PETER MORRIS  
WEST ENVIRONMENTAL S&T  
711 GRAND AVENUE, SUITE 220  
SAN RAFAEL, CA 94901

Phone: 415-460-6770  
Fax: 415-460-6771  
Email: main@westenvironmental.com

**ACCT:** 9946  
**PROJ:** WICKLAND.OAKLAND

**FROM:** Richard A. Kagel, Ph.D. *AKC 2/17/11*  
Laboratory Director

**SUBJECT:** LABORATORY RESULTS FOR YOUR PROJECT WICKLAND.OAKLAND

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
VP-1	AIR	02/01/11	11:25	89161
VP-2	AIR	02/01/11	12:07	89162
VP-3	AIR	02/01/11	12:26	89163

The above listed sample group was received on 02/02/11 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.  
Thank you for this opportunity to be of service.







**K PRIME, INC.**  
**LABORATORY METHOD BLANK REPORT**

**METHOD BLANK ID:** B02081102  
**SAMPLE TYPE:** AIR

**METHOD:** VOC'S IN AIR  
**REFERENCE:** EPA METHOD TO 15 (GC-MS-SCAN)

**BATCH ID:** 020811A02  
**DATE ANALYZED:** 2/9/11

COMPOUND NAME	CAS NO.	PPB (V/V)		µg/cu. m	
		MRL	SAMPLE CONC	MRL	SAMPLE CONC
DICHLORODIFLUOROMETHANE	75-71-8	0.500	ND	2.47	ND
DICHLOROTETRAFLUOROETHANE	76-14-2	0.500	ND	3.50	ND
CHLOROMETHANE	74-87-3	0.500	ND	1.03	ND
VINYL CHLORIDE	75-01-4	0.500	ND	1.28	ND
BROMOMETHANE	74-83-9	0.500	ND	1.94	ND
CHLOROETHANE	75-00-3	0.500	ND	1.32	ND
TRICHLOROFLUOROMETHANE	75-69-4	0.500	ND	2.81	ND
1,1-DICHLOROETHENE	75-35-4	0.500	ND	1.98	ND
TRICHLOROTRIFLUOROETHANE	76-13-1	0.500	ND	3.83	ND
METHYLENE CHLORIDE	75-09-2	0.500	ND	1.74	ND
1,1-DICHLOROETHANE	75-34-3	0.500	ND	2.02	ND
CIS-1,2-DICHLOROETHENE	156-59-2	0.500	ND	1.98	ND
CHLOROFORM	67-66-3	0.500	ND	2.44	ND
1,1,1-TRICHLOROETHANE	71-55-6	0.500	ND	2.73	ND
CARBON TETRACHLORIDE	56-23-5	0.500	ND	3.15	ND
1,2-DICHLOROETHANE	107-06-2	0.500	ND	2.02	ND
BENZENE	71-43-2	0.500	ND	1.60	ND
TRICHLOROETHENE	79-01-6	0.500	ND	2.69	ND
1,2-DICHLOROPROPANE	78-87-5	0.500	ND	2.31	ND
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.500	ND	2.27	ND
TOLUENE	108-88-3	0.500	ND	1.88	ND
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.500	ND	2.27	ND
1,1,2-TRICHLOROETHANE	79-00-5	0.500	ND	2.73	ND
TETRACHLOROETHENE	127-18-4	0.500	ND	3.39	ND
1,2-DIBROMOETHANE	106-93-4	0.500	ND	3.84	ND
CHLOROBENZENE	108-90-7	0.500	ND	2.30	ND
ETHYLBENZENE	100-41-4	0.500	ND	2.17	ND
XYLENE (M+P)	1330-20-7	0.500	ND	2.17	ND
XYLENE (O)	95-47-6	0.500	ND	2.17	ND
STYRENE	100-42-5	0.500	ND	2.13	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.500	ND	3.43	ND
1,3,5-TRIMETHYLBENZENE	108-67-8	0.500	ND	2.46	ND
1,2,4-TRIMETHYLBENZENE	95-63-6	0.500	ND	2.46	ND
1,3-DICHLOROBENZENE	541-73-1	0.500	ND	3.01	ND
1,4-DICHLOROBENZENE	106-46-7	0.500	ND	3.01	ND
1,2-DICHLOROBENZENE	95-50-1	0.500	ND	3.01	ND
1,2,4-TRICHLOROBENZENE	120-82-1	1.00	ND	7.42	ND
HEXACHLOROBUTADIENE	87-68-3	0.500	ND	5.33	ND

**NOTES:**

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

MRL - METHOD REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

µg/cu. m VALUES ARE CALCULATED FROM PPB RESULTS USING NORMAL TEMPERATURE AND PRESSURE (NPT).

**K PRIME, INC.**  
**LABORATORY QUALITY CONTROL REPORT**

LAB CONTROL ID: L02081102  
 LAB CONTROL DUPLICATE ID: D02081102

SAMPLE TYPE: AIR  
 BATCH ID: 020811A02  
 DATE ANALYZED: 2/9/11

METHOD: VOC'S IN AIR  
 REFERENCE: EPA METHOD TO 15 (GC-MS-SCAN)

COMPOUND NAME	SPIKE ADDED (PPB)	REPORTING LIMIT (PPB)	SAMPLE CONC (PPB)	SPIKE CONC (PPB)	SPIKE REC (%)	REC LIMITS (%)
1,1-DICHLOROETHENE	10.0	0.500	ND	10.8	106	60 - 140
TRICHLOROETHENE	10.0	0.500	ND	10.7	107	60 - 140
BENZENE	10.0	0.500	ND	11.8	118	60 - 140
TOLUENE	10.0	0.500	ND	11.6	116	60 - 140
TETRACHLOROETHENE	10.0	0.500	ND	8.36	83.6	60 - 140

COMPOUND NAME	SPIKE ADDED (PPB)	SPIKE DUP CONC (PPB)	SPIKE DUP REC (%)	RPD (%)	RPD (%)	QC LIMITS REC (%)
1,1-DICHLOROETHENE	10.0	11.0	110	3.99	25	60 - 140
TRICHLOROETHENE	10.0	11.0	110	2.78	25	60 - 140
BENZENE	10.0	11.9	119	0.253	25	60 - 140
TOLUENE	10.0	11.7	117	0.772	25	60 - 140
TETRACHLOROETHENE	10.0	8.49	84.9	1.54	25	60 - 140

**NOTES:**

NA - NOT APPLICABLE OR AVAILABLE  
 ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

