



December 11, 1996

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Mr. Jeffrey A. Hirsch
Assistant Vice President & Senior Asset Manager
Wells Fargo Bank
Asset Management Division
Trust Real Estate Department
P.O. Box 63939
San Francisco, CA 94163

ENVIRONMENTAL
PROTECTION
96 DEC 12 PM 3:07

RE: Environmental Investigation Work Plan Addendum
490 43rd Street, Oakland, California (Blumert Trust)
ACC Project No. 96-6305-1.1

Dear Mr. Hirsch:

This is an addendum to the Environmental Investigation Work Plan dated January 15, 1996, prepared by ACC Environmental Consultants, Inc., (ACC) for 490 43rd Street, Oakland, California (Figure 1). ACC will forward a copy of this addendum to Mr. Dale Klettke, Alameda County Health Care Services Agency, Environmental Protection (ACHCSA) for review and approval. This addendum specifically addresses concerns expressed in ACHCSA's letter dated October 17, 1996.

The installation of one downgradient groundwater monitoring well was addressed in the Work Plan. The proposed location of this monitoring well is shown on Figure 2. This addendum presents additional work associated with analytical testing required to verify that subsurface conditions will support natural bioremediation at the site and the use of oxygen releasing compound (ORC™) to enhance natural bioremediation. Soil sampling will be performed during groundwater monitoring well installation and the newly installed well will be used to evaluate the use of ORC™ in wells MW-1 and MW-3.

ADDITIONAL PROPOSED WORK

ACC will collect necessary soil and groundwater samples during and after installation of the proposed groundwater monitoring well to verify intrinsic bioremediation is occurring. Monitoring parameters will be measured and will include appropriate indicator tests which demonstrate bioremediation is possible, including dissolved oxygen (DO), nitrate, nitrite, sulfate, sulfide, ferrous and ferric iron, pH, temperature, conductivity, and bacteria testing. Soil bacteria testing will specifically address petroleum hydrocarbon degraders and gasoline will be used as the food source.

Soil and groundwater sampling will be performed according to ACC protocols and samples will be collected in appropriate, laboratory-supplied containers.

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Verify Intrinsic Bioremediation

Two soil samples will be collected for analysis from the boring of the proposed groundwater monitoring well. The two soil samples will be analyzed for constituents of concern, pH by EPA Method 9040, percent moisture by EPA Method 160.3, total organic carbon by EPA Method 9060, total nitrogen by EPA Methods 300.0, 350.3, and 351.4, total phosphorus by EPA Methods 365.2 and 365.3, and bacteria (hydrocarbon degraders) by proprietary testing. Standard turnaround time is 2 to 3 weeks for bacteria testing and 5 to 7 days for the remaining analytical results.

Three groundwater samples representative of the site will be collected for analysis. One groundwater sample will be collected from existing monitoring wells MW-1 and MW-2 and from the proposed downgradient groundwater monitoring well MW-4. The three groundwater samples will be analyzed for nitrate, nitrite, and sulfate by EPA Method 300, sulfide by EPA Method 9030, and ferrous and ferric iron by EPA Method 6010. Turnaround time is 5 days.

ACC will incorporate these additional sample analyses for samples collected from monitoring wells MW-1, MW-2, and MW-4 into future groundwater monitoring and sampling events if initial testing indicates additional testing is required. In addition, groundwater samples from each monitoring well will be analyzed for DO, pH, specific conductance, turbidity, salinity, and temperature in the field using a portable Horiba U-10® meter and continuous flow cell.

Introducing Oxygen Releasing Compound (ORC™)

ACC believes that natural bioremediation is occurring at the site and the process could be enhanced by introducing DO into groundwater. Because an additional groundwater monitoring well will be installed in 43rd Street to characterize groundwater conditions in the downgradient direction, two of the three existing groundwater monitoring wells could be utilized to introduce DO into groundwater using ORC™, a proprietary compound manufactured by Regenesi Bioremediation Products, San Diego, California.

ACC proposes to install a 1.5-inch-diameter column of ORC™ in the saturated zone in monitoring wells MW-1 and MW-3. The ORC™ dissolves and continually releases DO into the groundwater for approximately 6 to 9 months under typical conditions. The ORC™ raises the pH of the water in the well to approximately 10 pH units, which effectively prohibits bacterial growth in the well. Due to the proximity of wells MW-1, MW-2, and MW-3, ACC believes the effectiveness of ORC™ in reducing petroleum hydrocarbon concentrations can be evaluated by sampling well MW-2.

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DO concentrations will be monitored and documented in monitoring wells MW-1 through MW-4. Typically, DO concentrations in a treated well increase above 20 parts per million, which contrasts sharply with previously measured, low DO levels in the wells.

The effectiveness of introducing DO in wells MW-1 and MW-3 will be evaluated by monitoring and sampling groundwater monitoring well MW-2 and proposed well MW-4. DO, TPHg, and BTEX concentrations in wells MW-2 and MW-4 will be evaluated to determine whether DO is contributing to any decreases in TPHg or BTEX concentrations. Due to factors such as distance, hydraulic conductivity, and groundwater gradient, evidence of increased concentrations of DO may not be measurable in well MW-4. ACC expects to document enhanced bioremediation by measuring indicators such as unexpected decreases in TPHg and/or BTEX concentrations, changes in pH, and changes in sulfide, sulfate, nitrate, nitrite, and ferrous and ferric iron concentrations.

Rationale For Additional Proposed Work

ACC has evaluated the results of previous subsurface site investigation and believes that natural bioremediation is the only feasible or cost-effective remedial alternative. Minor concentrations of gasoline constituents and possibly some mineral spirits have leached into shallow groundwater and are migrating with it. Due to poor aquifer qualities, groundwater migration is believed to predominantly follow preferential pathways and a measurable, defined "plume" of impacted groundwater is difficult or impossible to determine. Previous exploratory soil boring analytical results are anomalous, and existing utilities, a downgradient, former underground storage tank (UST), and physical structures make conventional subsurface investigation difficult to perform.

We propose addressing these concerns by locating and installing a groundwater monitoring well downgradient of the former USTs located at 490 43rd Street and upgradient of the former UST located at 489 43rd Street. This monitoring well can be used to evaluate concentrations of gasoline constituents and DO, and help determine pertinent parameters in the saturated zone relating to groundwater movement. Natural bioremediation will be enhanced by introducing DO through the use of ORC™. DO concentrations can be measured in downgradient well MW-2 and proposed well MW-4 and evaluated in regards to decreasing TPHg and BTEX concentrations.

ACC recommends against locating a groundwater monitoring well in Telegraph Avenue. We would question the validity of data from this monitoring well and believe it is too far from 490 43rd Street. If additional "plume" definition or groundwater characterization is required, grab groundwater samples collected in borings would be more cost effective.

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This proposed work will be consistent with the guidelines provided in the ASTM document E 1739-95, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* and natural attenuation guidelines provided in the Environmental Protection Agency document EPA 510-B-94-003, *How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, A Guide for Corrective Action Plan Reviewers*.

If you have any comments regarding this addendum, please call me at (510) 638-8400.

Sincerely,

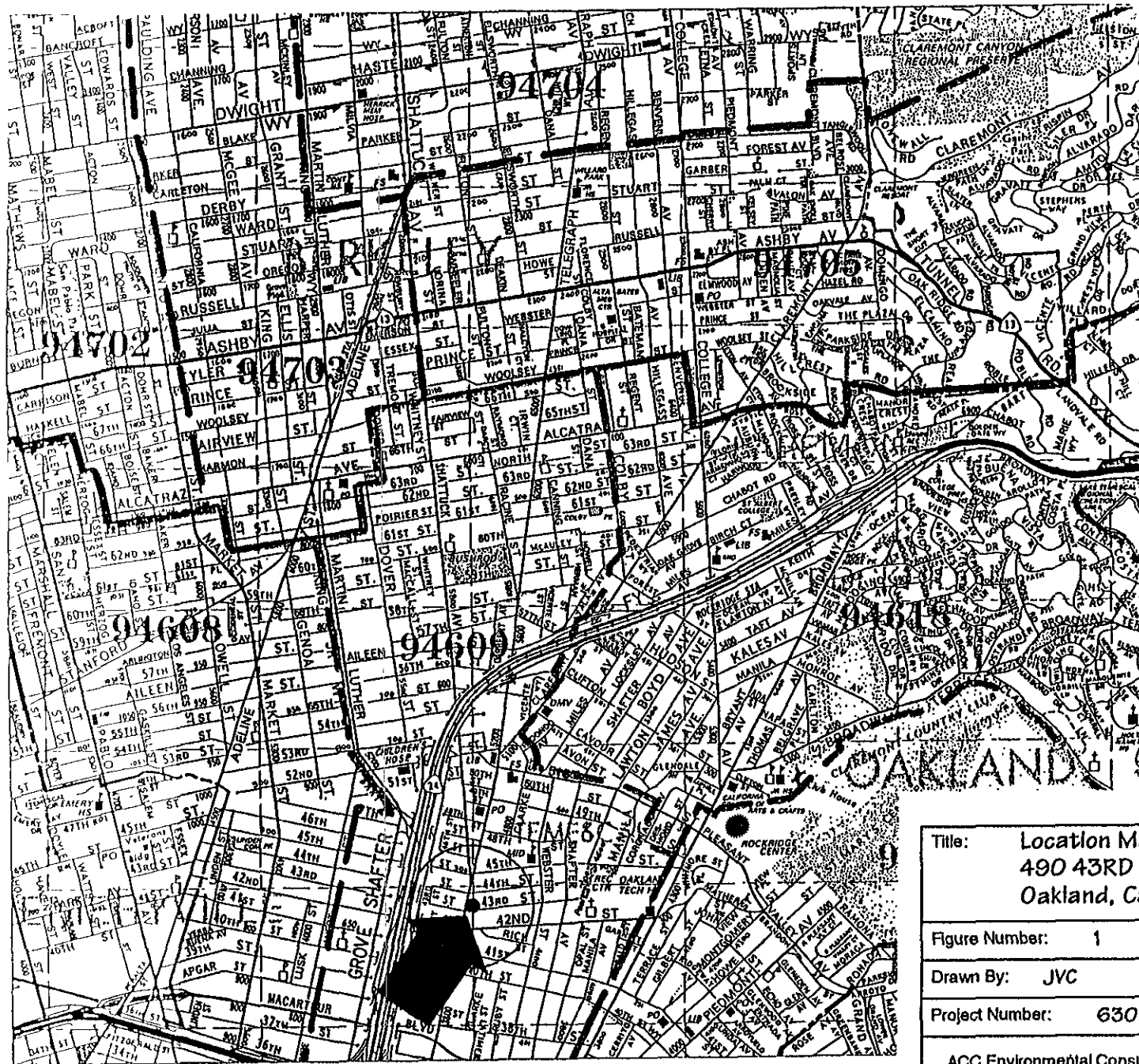
A handwritten signature in black ink, appearing to read "D. DeMent". The signature is fluid and cursive, with a large initial "D" and a stylized "DeMent".

David R. DeMent, RG
Senior Geologist

/drd:mcr

Enclosures

cc: Mr. Kenneth Cheitlin, McShane, Schnack & Cheitlin
 ■ Mr. Dale Klettke, ACHCSA



SOURCE: THOMAS BROTHERS GUIDE

Title: Location Map 490 43RD Street Oakland, California	
Figure Number: 1	Scale:
Drawn By: JVC	Date: 12/19/95
Project Number: 6305-1.1	
ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404	

TELEGRAPH AVENUE

EXISTING BUILDING

LOADING DOCK

EQUIPMENT STORAGE

ASPHALT SURFACE

EXISTING BUILDING

Approximate Groundwater Flow Direction

B8 ●

MW-1

SB2

Storm Sewer

Former Excavation Boundary

SB1

SIDEWALK

Water Line

B7 ●

EB2 ⊙

MW-2

MW-3

EB1 ⊙

43RD STREET

Former 1,000-Gallon Gasoline UST

Former 350-Gallon Paint Thinner UST

B6 ●

Gas Line

B5 ●




B4 ●

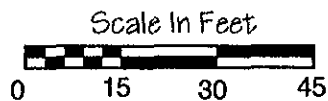
B3 ●

Storm Sewer

Former 1,000-Gallon Gasoline UST (489 43rd Street)

Legend

- MW-2  - Existing Groundwater Monitoring Well
- B4 ● - ACC Soil Boring Location (April 16, 1996)
- EB2 ⊙ - Kaprealian Engineering Boring Location
-  - Former Underground Storage Tank
-  - Proposed Groundwater Monitoring Well



Title: Site Plan 490 43rd Street Oakland, California	
Figure Number: 2	Scale: 1" = 30"
Drawn By: JVC	Date: 4/17/96
Project Number: 6305-1.1	
ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404	