P & D ENVIRONMENTAL
A Division of Paul H. King, Inc.
4020 Panama Court
Oakland, CA 94611
(510) 658-6916

December 15, 1997
Work Plan 0014.W5

Mr. Scott Seery
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

SUBJECT: **OFFSITE GROUNDWATER QUALITY INVESTIGATION WORK PLAN**
XTRA OIL Company
3495 Castro Valley Blvd.
Castro Valley, CA

Dear Mr. Seery:

P&D Environmental, a division of Paul H. King, Inc. (P&D) is pleased to present this Work Plan for the investigation of petroleum hydrocarbons in groundwater in the vicinity of the subject site. This work plan is prepared in accordance with our meeting at the Alameda County Department of Environmental Health (ACDEH) office on November 21, 1997, and your letter dated November 24, 1997. The objectives addressed in this work plan are as follows.

- Groundwater quality evaluation to the east and southeast of the subject site. In addition, three groundwater grab samples will be collected from the vicinity of Redwood Court to augment information obtained during previous investigations.

- Evaluation of sanitary sewer trenches as potential conduits for the rapid subsurface transmission of contaminants to ~~the east and southeast of the subject site~~ from the site → receptors.

As we discussed, the investigation will be performed to augment the groundwater sample results obtained from offsite locations during P&D's previous groundwater grab sample investigations. A Site Location Map is attached with this work plan as Figure 1, and a **Site Vicinity Map showing the proposed offsite** groundwater sample collection locations, designated as **P20 through P30**, is attached with this work plan as Figure 2.

P&D proposes to perform the following tasks.

- Obtain offsite property access from XTRA OIL Company; obtain permits from the Alameda County Department of Public Works and the Castro Valley Sanitary District; coordinate activities with the Castro Valley Sanitary District; notify Underground Service Alert; notify the ACDEH; and prepare a health and safety plan.

- **Collection of one groundwater grab sample from each of proposed offsite locations P20 through P26.** If elevated concentrations of petroleum hydrocarbons are encountered in the samples from proposed locations P23 through P26, one groundwater grab sample will be collected from any of proposed locations P27 through P30 which are located downgradient of detected petroleum hydrocarbons.

- Arrange for laboratory analysis of the groundwater grab samples for Total Petroleum Hydrocarbons as Gasoline (TPH-G); Benzene, Toluene, Ethylbenzene and Xylenes (BTEX); and for Total Petroleum Hydrocarbons as Diesel (TPH-D). and MtBE

- **Installation and monitoring of two piezometers adjacent to the sanitary sewer in Redwood Road** to determine if groundwater levels are seasonally coincident with the bottom of the sanitary sewer trench.

samples ?

- Report preparation documenting the groundwater grab sample collection procedures, the groundwater grab sample laboratory analytical results, the piezometer installation procedures adjacent to the sanitary sewer in Redwood Road, and the well monitoring results.

Each of these is discussed below in detail.

Property Access and Permitting

Following approval of this work plan, P&D will request XTRA OIL Company to obtain offsite property access from the appropriate property owners. Following receipt of permission for offsite property access, P&D will obtain permits from the Alameda County Department of Public Works; notify Underground Service Alert for buried utility location; provide notification to the ACDEH of dates for field activities; and prepare a health and safety plan.

Groundwater Grab Sample Collection

P&D will initially collect groundwater grab samples from seven locations, designated as P20 through P26. In the event that petroleum hydrocarbons are detected in any of samples P23 through P26, additional groundwater grab samples will be collected from the locations P27 through P30 which is downgradient of the detected petroleum hydrocarbons. The proposed locations of the groundwater grab samples are shown on Figure 1.

Groundwater grab samples will be obtained by drilling through the surface cover materials and hand augering to a depth of approximately 12 to 14 feet. After groundwater has entered the boreholes, groundwater samples will be collected from the boreholes using a Teflon bailer.

The groundwater grab samples will be transferred to 40-milliliter Volatile Organic Analysis (VOA) vials and one-liter amber glass bottles and capped with Teflon-lined screw caps. The bottles will be labeled and stored in a cooler with ice pending delivery to McCampbell Analytical, Inc. in Pacheco, California. McCampbell is a State-accredited hazardous waste testing laboratory. Following groundwater grab sample collection, the boreholes will be filled with neat cement.

Soil generated during this investigation will be transferred to DOT-approved drums pending appropriate disposal. The hand auger and Teflon bailer will be cleaned prior to each use with an Alconox solution wash followed by a clean water rinse.

Laboratory Analysis

The groundwater grab samples will be analyzed for TPH-G, BTEX, MTBE, and TPH-D.

Piezometer Installation and Monitoring

Following approval of the Castro Valley Sanitary District, two piezometers, designated as OW1 and OW2, will be installed to the east and southeast of the subject site in Redwood Road **immediately adjacent to the sanitary sewer pipe.** Because of traffic safety considerations, these piezometers will be installed in the median strip in Redwood Road. **These piezometers will be installed to a total depth equivalent to the depth of the bottom of the sanitary sewer pipe.** The piezometers will be monitored on a monthly basis to determine if groundwater levels are coincident with or exceed the bottom of the pipe trench.

The boreholes for the piezometers will be drilled with eight or ten-inch outside-diameter hollow stem augers using a truck-mounted drill rig. The hollow stem augers will be steam cleaned prior to use in the boreholes. Soil samples will be collected from the boreholes into brass tubes at a maximum of five foot intervals, at changes in lithology and at any areas of obvious contamination using a Modified California split-spoon sampler lined with brass tubes. Blow counts will be recorded every six inches. The soil samples will be logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. In addition, the soil samples will be evaluated with a photoionization detector. Some of soil the samples collected from these piezometer boreholes will be retained for laboratory analytical purposes.

The boreholes for the piezometers will be advanced to a depth equivalent to the bottom of the sanitary sewer pipes (an anticipated depth of approximately eight feet below the ground surface). Based on previous subsurface investigations near the subject site, first encountered groundwater is anticipated at a depth of approximately 12 feet. The static water level in the existing wells at the subject site is approximately 7 to 8 feet below the ground surface.

Based upon a telephone conversation with Ms. Hannah Wong of the Castro Valley Sanitary District, the vaults for the sanitary sewer manholes extend to a depth of approximately six inches below the bottom of the sanitary sewer pipes. The pipes are reportedly located on the bottom of the pipe trenches. In addition, the pipe trenches were reported to have been backfilled with the materials excavated from the pipe trenches.

The observation wells will be constructed using one-inch diameter Schedule 40 PVC pipe. The lowermost 3 feet of the pipes will be factory slotted 0.010-inch slotted pipe. A screw-on cap or slip-cap will be placed on the bottom of the well. The annular space surrounding the screen will be filled with a Lonestar #2/16 sack sand to a height of one foot above the top of the screen. A one-foot thick layer of bentonite pellets will be placed above the sand and hydrated. The remaining annular space will be filled with a neat cement grout to one foot below the ground surface. The top of the piezometer pipe will be secured with a locking expandable plug and enclosed in a water-tight, traffic-rated locking vault. The top of the vault will be set slightly above grade to inhibit the collection of water in the vault.

The piezometers will be monitored with an electric water level indicator on a monthly basis for one year to determine if groundwater levels are coincident with or exceed the bottom of the sanitary sewer pipe trench.

Soil and water generated during drilling will be stored in DOT-approved 55-gallon drums pending appropriate disposal.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will contain documentation of field activities associated with the collection of the groundwater grab samples; copies of the laboratory analytical results and chain of custody documentation; a tabulated summary of the laboratory analytical results; a discussion of the local geology and hydrogeology; a map showing the sample collection locations; a discussion of the results; recommendations based upon the laboratory analytical results; and the signature and stamp of an appropriately registered professional.

At the time that the groundwater grab samples are collected, the potential receptor population in the area of investigation will be identified.

Following delineation of the extent of petroleum hydrocarbons to the east and southeast of the site, recommendations for the placement of offsite groundwater monitoring wells and the collection of soil gas samples from utility trenches in petroleum-affected areas will be included in the report documenting the results of the offsite groundwater quality investigation.

SCHEDULE

The actual start date for this investigation will be dependent upon ACDEH work plan approval and XTRA OIL Company successfully obtaining offsite access permission. Following notification from XTRA OIL Company of permission for offsite access, P&D will complete the work set forth in this work plan in accordance with the following schedule.

Activity	Calendar Days
Work plan submittal	Day 0
Work plan approval	Day 7
Permit application submittal	Day 10
Request offsite property access	Day 10
Permit application approval	Day 17
Receive offsite property access permission	Day 17
Set drill date with driller	Day 20
Well installation and soil boring	Day 34
Receipt of groundwater sample results	Day 41
Submittal of draft report to XTRA OIL Company for review	Day 62
Submittal of final report to ACDEH	Day 76
Proposed piezometer locations in report approved by ACDEH	Day 90
Permit application submittal	Day 93
Request offsite property access	Day 93
Permit application approval	Day 100
Receive offsite property access permission	Day 100
Set drill date with driller	Day 103
Piezometer installation and soil boring	Day 117
Receipt of soil, air and groundwater sample results	Day 135
Submittal of draft report to XTRA OIL Company for review	Day 156
Submittal of final report to ACDEH	Day 170

done ✓

need to get data this week

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,
P&D Environmental

Paul H. King

Paul H. King
Hydrogeologist

REGISTERED GEOLOGIST
DON R. BRAUN
No. 1310
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Don R. Braun
Certified Engineering Geologist
Registration No.: 1310
Expiration Date: 6/30/98

Attachment: Site Location Map - Figure 1
Site Vicinity Map - Figure 2

cc: Mr. Ted Simas and Mr. Keith Simas, XTRA OIL Company

PHK/0014.W5

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Oakland, CA 94611
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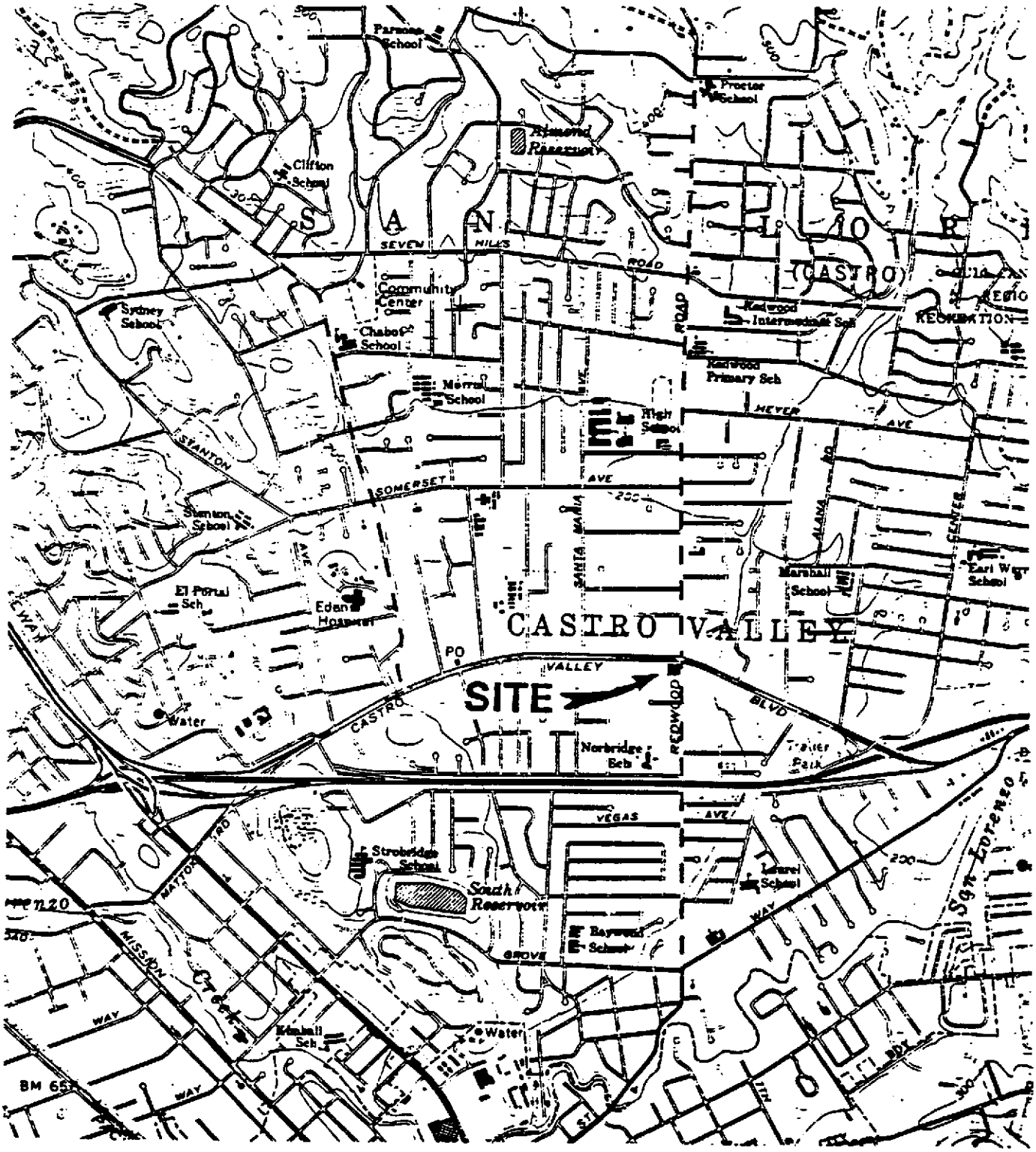
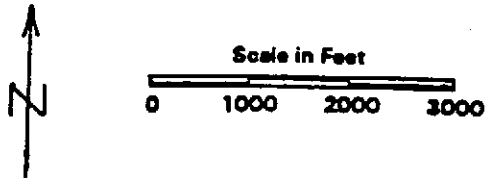
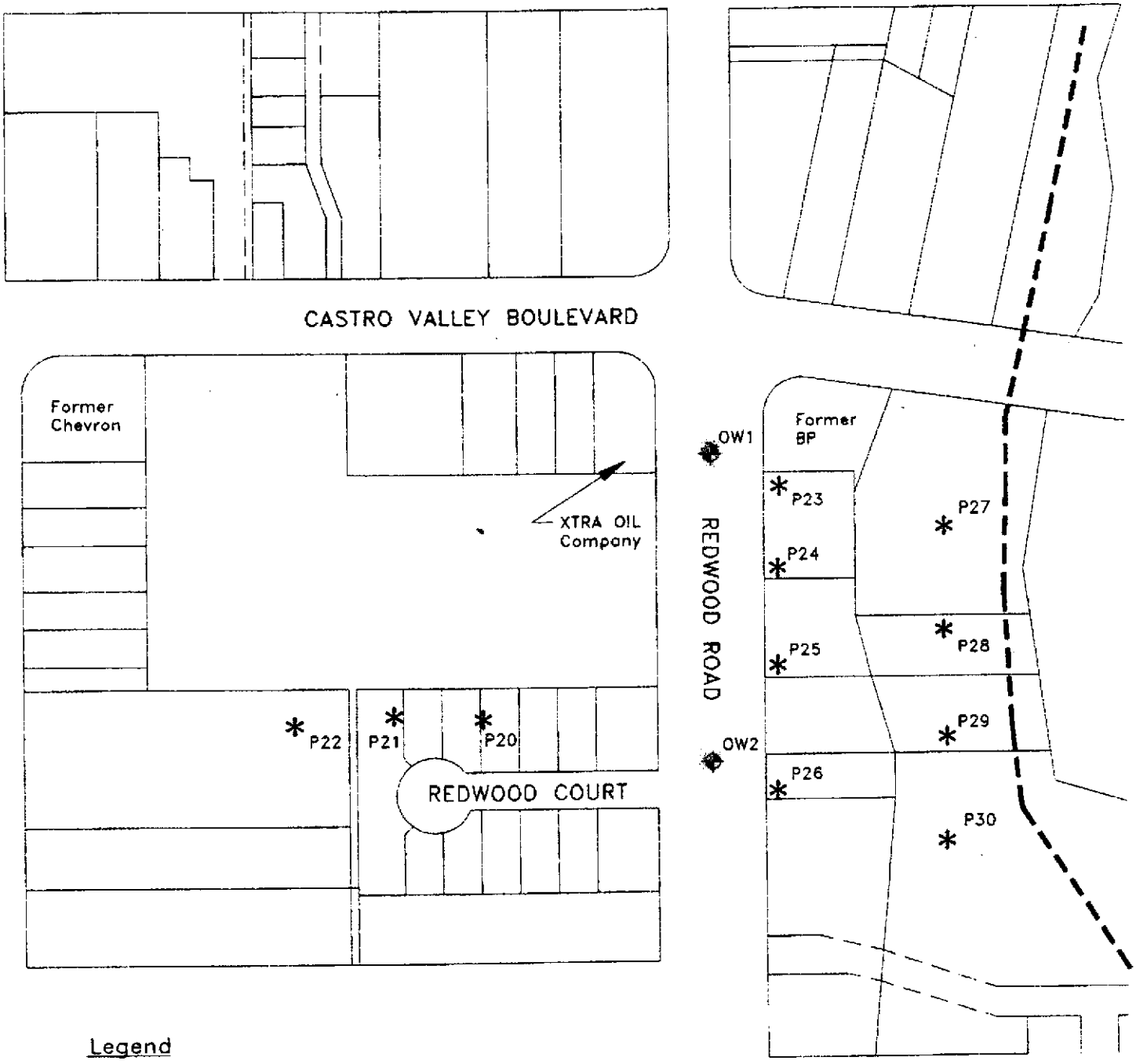




Base Map from:
U.S. Geological Survey
Hayward, Calif.
7.5 Minute Quadrangle
Photorevised 1980

Figure 1
SITE LOCATION MAP
XTRA OIL Company
3195 Castro Valley Blvd.
Alameda, California

P & D Environmental
4020 Panama Court
Oakland, CA 94611
Telephone (510) 658-6916



Legend

- Proposed Groundwater Grab Sample Collection Location
- Proposed Observation Well Location
- Approximate Creek Location

Base Map From:

Castro Valley Sanitation District
Undated
(BJ1C65)

N

0 150 300
SCALE IN FEET

Figure 2
SITE VICINITY MAP
XTRA OIL Company
3459 Castro Valley Blvd.
Castro Valley, California