



January 22, 1996

11295 012

Mr. Jeff Christoff
Blue Print Service Company
149 Second Street
San Francisco, California 94105

**Work Plan
Offsite Groundwater Investigation
1700 Jefferson Street
Oakland, California**

Dear Mr. Christoff:

Harding Lawson Associates (HLA) has prepared this work plan for additional offsite groundwater investigation near the City Blue Production facility at 1700 Jefferson Street in Oakland, California. This additional investigation is designed to provide data to further evaluate the lateral extent of petroleum hydrocarbons in groundwater near the City Blue site, and to evaluate the possibility of other plumes impacting the site. In our July 5, 1994 meeting with the Alameda County Health Services Agency, the City Blue site caseworker, Mr. Tom Peacock, requested a work plan for additional investigation to define the lateral extent of the dissolved petroleum hydrocarbons plume.

SCOPE OF WORK

Task 1 - Monitoring Well Installation and Sampling

*MW-6 Installed 4/96 per Jim
McCourtney*

HLA will apply for a Minor Encroachment Permit from the City of Oakland to install one permanent groundwater monitoring well in the parking lane of Jefferson Street, west of the former MW-2 location. HLA proposes to install this new well, designated as MW-6, on the west side of Jefferson Street as shown on Plate 1. After installation of MW-6, the vertical elevations of the top of the well casing of each onsite and offsite monitoring well will be surveyed. The extraction pumps in MW-1A and MW-4 will be turned off and the water levels allowed to recover to obtain natural gradient information. The extraction pumps will be turned on after natural gradient information has been collected. We estimate that the extraction pumps will be off for approximately four days. Monitoring Wells MW-1A, MW-3, MW-4, MW-5, and MW-6 will be purged and sampled. Groundwater samples will be analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX).

Task 2 - Offsite Groundwater Investigation

The results of the MW-6 well installation, gradient determination, and analysis for TPHg and BTEX will be used to select the locations and number of subsequent offsite data points.

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To collect additional groundwater information offsite, HLA will install temporary well points (TWP) in the parking lanes of 17th Street, 18th Street, and Jefferson Street. The TWP will be installed in borings that have been drilled below the water table. One-inch-diameter PVC casing, slotted casing below the water table, will be placed in the borehole, covered with a temporary well cover and allowed to stabilize overnight. The TWP construction and overnight stabilization should allow floating product to be detected, if present. Groundwater samples will be collected from these TWP approximately 12 to 24 hours after installation.

Will
use CPT
rig-direct
push

Will collect
soil at gw
soil/interface

One TWP will be installed upgradient of the former underground storage tanks (USTs); as determined from the results of Task 1. The remaining TWP will be installed downgradient of the former USTs in an attempt to define the lateral extent of the plume. We anticipate installing one TWP at least 100 feet north of MW-5 on the east side of Jefferson Street; one TWP at least 100 feet east of MW-5 on the north side of 18th Street; and at least two additional well points at locations that will be determined based on the results of Task 1. Proposed TWP locations are shown on Plate 1.

Task 3 - Data Evaluation and Reporting

HLA will prepare a letter report documenting the results of Task 1 and 2 with recommendations and conclusions.

The tasks proposed to complete this scope of work are summarized below:

- Apply for permits from the City of Oakland and County of Alameda for installation of MW-6 in public right-of-way
- Install and develop MW-6
- Survey vertical elevation of the top of casing of each monitoring well
- Monitor water levels with extraction pumps off; determine natural gradient
- Sample each monitoring well; analyze samples for TPHg and BTEX
- Select offsite TWP locations
- Apply for permits for TWP
- Install, sample, and remove TWP
- Review results of chemical analyses
- Prepare summary report.

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FIELD PROCEDURES AND SPECIFICATIONS

MW-6 Installation

MW-6 will be installed in the public right-of-way on the west side of Jefferson Street, north of 17th Street. The well will be drilled using 8-inch-diameter hollow-stem augers and will be completed using 2-inch-diameter Schedule 40 flush-threaded PVC pipe. The screened portion of the well casing will be perforated with 0.02-inch slots and will extend to approximately 5 feet above the static water table measured in the boring during drilling. The annulus will be filled with No. 2/12 sand from the bottom of the boring to a depth approximately 2 feet above the top of the screen interval. Approximately 2 feet of bentonite pellets will be placed on top of the sand and hydrated with water. The remainder of the annular space will be filled with cement. The monitoring well will be secured with a locking cap and completed with a flush-mounted steel well cover.

The groundwater monitoring well will be developed using a surge block/bailer technique and pumped until the water is visually free of turbidity. Pumping will continue until at least five well volumes of groundwater have been removed and temperature, conductivity, and pH parameters have stabilized. The groundwater in the well will be sampled at least 24 hours after the well has been developed. Soil cuttings generated during drilling will be contained in 55-gallon drums and stored inside the fenced treatment system compound. Decontamination water and purged groundwater will be processed by the groundwater treatment system.

Water Level Monitoring

Water levels in the onsite wells will be monitored after the extraction pumps have been turned off to allow recharge of groundwater levels beneath the site. Measurements will be taken with an oil/water interface probe and a steel tape accurate to 0.01 foot. Water level measurements will be corrected if floating product is detected. When the water levels suggest a natural gradient that is not significantly influenced by the drawdown in the extraction wells, the gradient will be calculated and the wells will be sampled.

Monitoring Well Sampling

Monitoring Wells MW-1A, MW-3, MW-4, MW-5, and MW-6 will be sampled to satisfy quarterly groundwater monitoring. At least three well casing volumes of water will be purged from each well before sampling. Water samples will be analyzed for TPHg and BTEX by a state-certified chemical testing laboratory. The analysis will be performed on a standard 10-day turnaround. The results will be reviewed by HLA to aid in the selection of TWP locations.

Install Temporary Well Points

HLA will install TWPs at the selected and permitted locations with a hollow-stem auger drill rig. Borings will be drilled approximately 5 feet below groundwater. Soil samples will be collected immediately above and below groundwater and screened with a photoionization detector for hydrocarbons. After drilling approximately 5 feet below the groundwater table, a 1-inch-diameter

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PVC pipe, with perforations in the bottom 10 feet, will be inserted. A temporary cover will be placed over the hole to allow pedestrian and vehicle traffic.

Before sampling, the TWP's will be checked approximately 12 to 24 hours after installation for water and floating product. Groundwater samples will be collected with a clean PVC bailer. At least three 40-milliliter vials (VOAs) will be collected from TWP's containing groundwater. After the TWP's have been sampled, the 1-inch PVC pipe will be removed and the hole will be sealed with cement grout. Groundwater samples will be submitted to a state-certified chemical testing laboratory for TPHg and BTEX analysis.

SCHEDULE

HLA is prepared to begin Task 1 this work plan within one week of receiving approval of the scope of work from the Alameda County Health Services Agency. Please contact David Scrivner at (510) 687-9660 if you have any questions regarding this work plan.

Yours very truly,

HARDING LAWSON ASSOCIATES



David F. Scrivner, P.E.
Project Engineer



David R. Kleesattel, R.G.
Associate Hydrogeologist

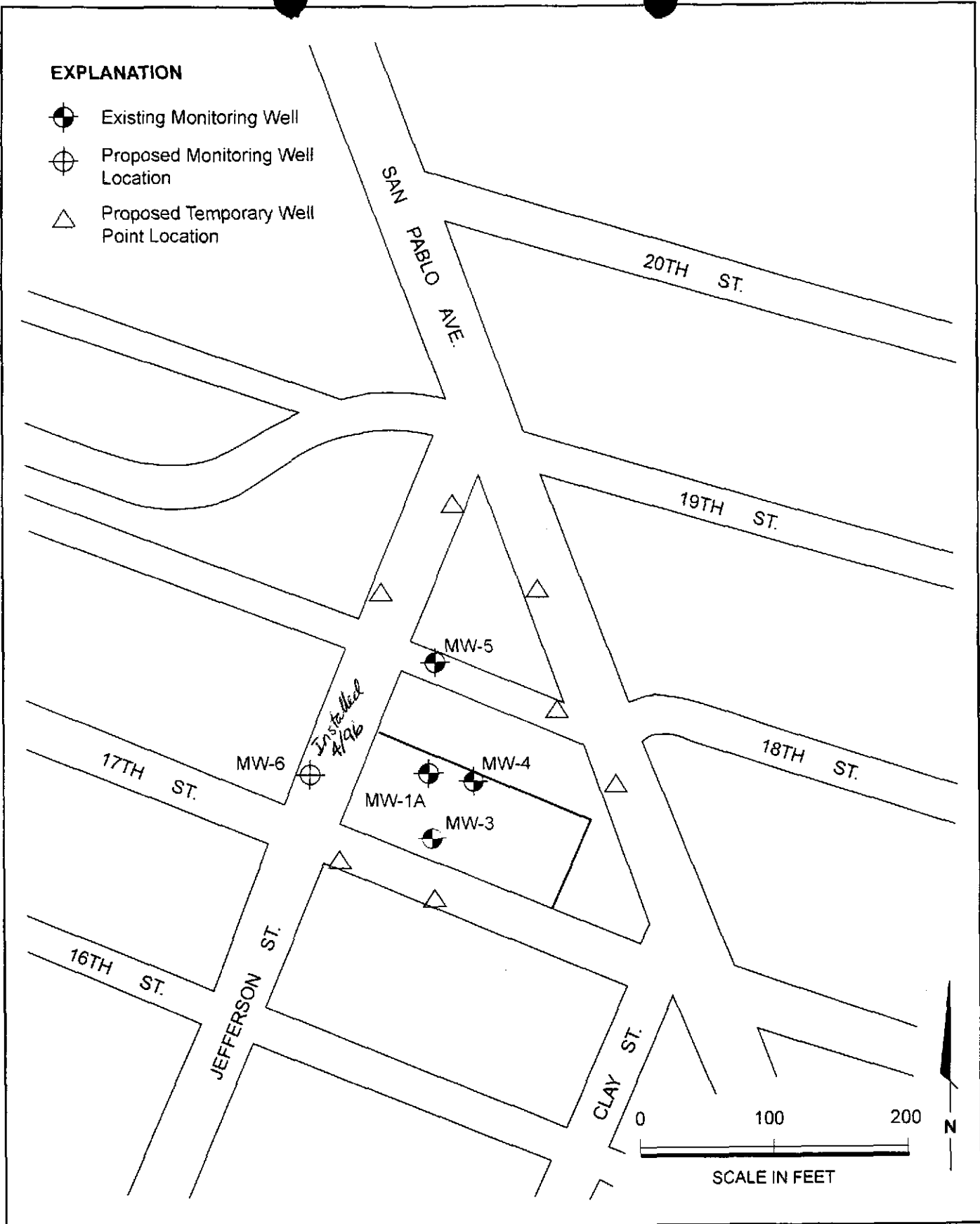
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Attachments: Plate 1 Proposed Well Locations

- ✓ cc: Mr. Thomas F. Peacock
Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502-6577

EXPLANATION

- ⊙ Existing Monitoring Well
- ⊕ Proposed Monitoring Well Location
- △ Proposed Temporary Well Point Location



PLATE

1



Harding Lawson Associates
Engineering and
Environmental Services

Proposed Well Locations
Offsite Groundwater Investigation
City Blue Production Facility
Oakland, California

DRAWN
AJW

PROJECT NUMBER
11295-012

APPROVED
[Signature]

DATE
01/18/96

REVISED DATE

Proposed GWE + RBA
1996

Postponed due to reappear
of FP

Going back to old plan (1/96)
wants to do old plan but
w/ a few mods

Jim McCarty - 510 628 3220

Harding Lawson - Oakland

Jan '96 WP: Dmv. lateral extent + possi-
ble offsite sources

- New MW (6) on Jeff 'son St - W of MW 2
- TWPs in 17th, 18th Sts + Jeff - look for FP
(1 upgr, 2 downgr) ↓ 100' N of MWS
+ 2 TWPs based on results ↓ 100' E "
- MW-6 installation (in or outside plume?)

10/3/97 -

Jim McCarty called
+ said he was turning
off the pump + treat
system today. He will
be gone for 2 weeks + thinks
he will turn it back on
then. Doesn't agree it's not been effective.

Plan to do a risk based
approach to determine
what to do next

Issuing a letter by the
end of October explaining
their approach.

Site 4148 - 1700 Jefferson St
PERTON'S 9197 ltr - MWs 1A,
4 + 3 all have FP - plume
poorly defined - offsite well
(MW-5) has 12,000 ppb benzene
They've been asked to re-eval
their entire approach as
the current pump + treat
doesn't seem to be lowering
MW conc. adequately. They've
been asked to do an EE, +
to inv. extent of plume

Spoke w/ J McCarty 11/27/98
re: mods to 1/96 - I gave
oral OK to proceed 1/27/98
JC