facsimile

TRANSMITTAL

1) To: Susan Hugo

Company: Alameda County Department of Environmental Health

Fax #: 510-337-9335

2) To: Dr. Ravi Arulanantham phone 510-286-1331

Company: Regional Water Quality Control Board

Fax #: 510-286-1380

Re: **Draft Workplan for 5/14 Meeting for former Standard Brands Store in Emeryville**

Date: May 13, 1997

Pages: 23 including cover page

If you do not receive all pages, please call (714) 756-2667

Please review this workplan prior to your meeting on 5/14 at 2:30 pm at Susan Hugo's office. We apologize if the faxed figures are difficult to read; a federal express original will be forwarded to you for 10:30am delivery to your offices tomorrow.

Please call me at 714-752-3221 if you have any questions or you may also call Mark Williams at 714-752-3238.

Thank you!

Nancy A. Beresky
Supervising Geoscientist
McLaren/Hart
16755 Von Karman
Irvine, California 92606-4918

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McLaren Hart

McLaren Hart®
ENVIRONMENTAL ENGINEERING CORPORATION

May 12, 1997

Susan Hugo
Alameda County
Department of Environmental Health
1131 Harborbay Parkway
Alameda, CA 94502-6577

RE: DRAFT WORKPLAN FOR SOIL SAMPLING AND RISK ASSESSMENT AT FORMER STANDARD BRANDS PAINT STORE NO. 147, 4343 SAN PABLO AVENUE, EMERYVILLE, CALIFORNIA

Dear Ms. Hugo:

Attached please find a draft workplan describing proposed soil sampling and risk assessment activities for the former Standard Brands Paint Store #147 property, located as noted above (Subject Site). The proposed scope includes field work, evaluation of low risk status, performance of a risk assessment, and discussions with your agency and the Regional Water Quality Control Board (RWQCB) to determine cleanup levels and provide the direction for the most timely closure of the Subject Site. The City of Emeryville Redevelopment Agency will participate in all discussions about the scope of work required to achieve closure. Specific activities to be performed in the proposed scope of work include:

- collecting and analyzing soil samples to provide:
  - Subject Site-specific, physical soil parameters for input into the risk assessment;
  - chemical analysis of polynuclear aromatics hydrocarbons (PAHs) for input into the risk assessment; and
  - analysis for total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) in areas where analytical data collected during previous investigations do not agree or are not conclusive.

- collecting and analyzing water samples to provide:
  - verification of groundwater analytical results for PAHs and volatile organic compounds in areas where previous investigation results do not agree or are not conclusive.

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- evaluating the risk assessment method to be used based on the collected data;
- preparing the risk assessment using Subject Site-specific data previously collected; and
- development of site-specific cleanup levels (site specific target levels or SSTLs) with the RWQCB.

We are providing you with a copy of the workplan at this time so that you may review the scope and intent prior to our meeting on May 14, 1997. A copy of this workplan is also being sent to Dr. Ravi Arulanantham for his preview as well.

If you have any questions on this workplan, please contact Nancy Beresky at (714) 752-3221, or Clifton Davenport at (510) 748-5654.

Sincerely,

Jeffrey V. Dagdigian, Ph.D.
Vice President
Managing Principal Environmental Scientist

Clifton Davenport
Principal Geoscientist

cc: Ravi Arulanantham - SFRWQCB
Lyman Lokken - Transamerica Occidental Life Insurance Co.
Frank Aparicio, Esq. - Kelley, Drye & Warren LLP
Jeffrey Dagdigian - McLaren/Hart
David Waite - Jeffer, Mangels, Butler & Marmaro

Draft Workplan for Soil Sampling and Risk Assessment

McLaren/Hart Project No. 03.0602368.001.001

Former Standard Brands Paint Store No. 147
4343 San Pablo Avenue
Emeryville, California

May 13, 1997

Prepared by: **McLaren/Hart Environmental Engineering Corporation**
16755 Von Karman Avenue
Irvine, California 92606-4918

Jeffrey V. Dagdigian, Ph.D.
Vice President
Managing Principal Env. Scientist

Clifton Davenport
Principal Geoscientist

DRAFT

1.0 INTRODUCTION AND BACKGROUND

McLaren/Hart has been retained to evaluate environmental issues at the former Standard Brands Paint Store #147, 4343 San Pablo Avenue, Emeryville, California (Subject Site). This workplan was prepared with input from the City of Emeryville Redevelopment Agency. The purpose of the scope of work provided in this workplan is to:

- collect and analyze soil samples to provide:
  - Subject Site-specific, physical soil parameters for input into the risk assessment;
  - chemical analysis of polynuclear aromatics hydrocarbons (PAHs) for input into the risk assessment; and
  - analysis for total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) in areas where analytical data collected during previous investigations do not agree or are not conclusive.

- collect and analyze water samples to provide:
  - verification of groundwater analytical results for PAHs and volatile organic compounds in areas where previous investigation results do not agree or are not conclusive.

- evaluate the risk assessment method to be used based on the collected data;

- prepare the risk assessment using Subject Site-specific data previously collected; and

- develop Subject Site-specific cleanup levels (site specific target levels or SSTLs) with the Alameda County Department of Environmental Health and the Regional Water Quality Control Board (RWQCB).

This section presents background information regarding the Subject Site. The first portion discusses the local geology and hydrogeology of the Subject Site. The second portion

describes prior use of the Subject Site and includes a description of previous environmental investigations conducted on the Subject Site.

1.1 LOCAL HYDROGEOLOGY

According to a previous Subject Site investigation reported by Environ Corporation in a document entitled *"Subsurface Investigation Report, Standard Brands Property, Emeryville California"* dated December 3, 1993 (Environ report), owners of neighboring sites have conducted investigations and have determined that groundwater is generally encountered 5 to 15 feet below ground surface. According to the United States Geological Survey Topographic Map of the Oakland West Quadrangle (1959, Photorevised 1980) the Subject Site is approximately 40 feet above mean sea level. The nearest surface water is the San Francisco Bay located approximately 1 mile west. Groundwater flow in the area is reported to be towards the Bay, in a westerly to southwesterly direction.

Groundwater beneath the Subject Site may be under semi-confined conditions. The groundwater levels rose in boreholes after it was first encountered during Environ's 1993 investigation. In one borehole, Environ indicated that groundwater was first encountered at a depth of 18.5 feet, but groundwater rose to 11.85 feet below the ground surface within one-half hour. The groundwater flows to the west according to the December 1993 Environ report. This flow direction is consistent with the reported regional flow direction.

Soil boring logs indicate that the lithology consists of silty clays to sandy clays to a depth of approximately 25 feet with as much as 85 percent clay in some samples. A portion of the scope of work proposed in this workplan is to determine the exact depth to water and the depth of the vadose zone beneath the Subject Site.

1.2 PRIOR SUBJECT SITE USE AND PREVIOUS ENVIRONMENTAL INVESTIGATION

The Subject Site was formerly used as a Standard Brands retail paint store, a tire retread and manufacturing company (Oliver Rubber and Tire), and an oil and gas depot. An underground storage tank (UST) exists on the Subject Site associated with past Subject Site use as an oil and gas depot. Former chemical use areas based on historical Subject Site usage are shown on Figure 1. TPH in the diesel and mineral spirits range have been detected in soil underlying the Subject Site. Based on soil and groundwater investigations performed by Enviropro, Inc. in

1994 and Environ in 1995, Enviropro and Environ concluded that these chemicals have originated from past operations performed by Oliver Rubber and Tire.

Enviropro, Inc. performed soil and groundwater sampling in June 1994; these soil sampling location names begin with the letter "G" and are shown on Figure 2. Environ performed additional soil and groundwater sampling in June 1995. Enviropro and Environ sampling locations are also shown on Figure 3. Environ sample locations begin with the letter "B" or "CPT". Figure 3 also shows sampling locations on surrounding properties. Groundwater sampling locations on the Subject Site and surrounding properties are shown on Figure 4.

Based on the results of these two investigations, six areas affected by TPH have been identified. These are shown as Areas A, B1, B2, C, D, E, and F on Figure 5.

The cross section line A-A' provides a comparison of data results for TPH as gasoline between the Enviropro and Environ investigations. The cross section trace is shown on Figure 5. Figure 6 illustrates the area impacted by TPH as gasoline, while TPH as diesel/mineral spirits is shown on Cross on Figure 7. Based on the data provided, it appears that vadose zone soils up to 8 feet in depth have been impacted by TPH as gasoline and/or diesel and mineral spirits.

Soil sampling results for volatile organic compounds (VOCs) are shown on Figure 8. Review of the data indicates that impact to Subject Site soils by VOCs is limited to scattered detectable concentrations of chlorinated VOCs up to 79 parts per billion (ppb).

Figure 9 provides groundwater sampling results for VOCs. Methylene chloride is the VOC detected most frequently above maximum contaminant levels (MCLs).

2.0 SCOPE OF WORK

To achieve the project objectives, McLaren/Hart proposes the following scope of work:

Task 1.0 Agency Meetings and Negotiation
Task 2.0 Prefield Activities
Task 3.0 Soil Sampling
Task 4.0 Risk Assessment
Task 5.0 Report Preparation

2.1 TASK 1.0 AGENCY MEETINGS AND NEGOTIATION

The Alameda County Health Care Services Agency (ACHCSA) is expected to be the lead oversight agency. Since the project may likely utilize risk assessment, the State of California Regional Water Quality Control Board (RWQCB) involvement is also anticipated. Two episodes of agency meetings and negotiation with the ACHCSA and RWQCB are proposed to streamline the agency review process. Agency meetings or negotiations would occur:

- after completion draft soil sampling and risk assessment workplans; and
- after completion of Task 5.0 for the soil sampling and risk assessment report.

The first meeting will provide the ACHCSA and RWQCB with an opportunity to comment on the planned soil sampling locations, analysis, and depths. Other goals for this meeting are to discuss the potential applicability of low-risk status (SWRCB Draft Resolution 01-21-97) for the Subject Site; as well as proposed methodology for RWQCB concurrence on the risk assessment to be conducted if necessary.

The second meeting will be held after soil sampling and risk assessment activities have been completed and the draft report prepared. During this meeting, proposed cleanup levels will be reviewed and concurrence and/or comments will be obtained from the oversight agencies.

2.2 TASK 2.0 PREFIELD ACTIVITIES

After the scope of work for sampling and risk assessment has been agreed upon and prior to initiating field work, McLaren/Hart will perform the following activities:

- Hold an internal job start-up meeting;
- Identify proposed sampling locations in the field;
- Perform a utility clearance in proposed boring locations;
- Update the Site Health and Safety Plan for the Subject Site;
- Schedule subcontractors and prepare subcontracts; and
- Prepare and calibrate field equipment.

2.3 TASK 3.0 SOIL AND GROUNDWATER SAMPLE COLLECTION

As previously mentioned, six areas of the Subject Site (noted on Figure 5 as Areas A, B1, B2, C, D, and E) have been affected by TPH as either gasoline or diesel/mineral spirits. To determine current chemical concentrations in soil and to obtain chemical data in areas where analytical results from the Environ and Enviropro investigations do not agree, borings are proposed adjacent to previously-drilled "paired" or single borings completed during previous investigations located within the six designated TPH-affected areas. The "pairs" consist of a boring drilled by Enviropro in 1994 and a subsequent, adjacent boring drilled by Environ in 1995. Additionally, several samples will be selected for volatile organic compound (VOC) analysis to determine the current concentrations of VOCs in the soil on the Subject Site.

2.3.1 Soil Sample Collection

Soil boring locations will first be cleaned by a utility clearance technician. Asphalt or concrete paving will be removed by coring at each of the eight proposed sample locations. Each location will be hand augered to 5 feet. Samples will be collected using a hand auger or drive sampler (for samples shallower than 5 feet in depth) and Geoprobe (for deeper samples). While use of the Geoprobe creates a minimum of soil cuttings, it is expected that up to one 55-gallon drum of cuttings and one 55-gallon drum of decontamination rinsate water will be generated during sampling. The appropriate disposal method for this material can be evaluated after receipt of final laboratory data. The client will be notified when appropriate disposal

options have been determined. Protocols for soil sampling methods are included in Appendix A.

Five borings will be drilled adjacent (within 5 feet) of the following "paired" locations as shown on Figure 5:

- B-4/G5 (TPH-affected Area B1)
- B-5/G9 (TPH-affected Area B2)
- B-6/G25 (TPH-affected Area B2)
- B-7/G26 (TPH-affected Area B2)
- B-10/G8 (TPH-affected Area D)

Three borings will be drilled adjacent to previous single locations (as shown on Figure 5) where higher concentrations of total petroleum hydrocarbons (TPH) as mineral spirits/diesel were detected:

- G22 (TPH-affected Area A)
- G24 (TPH-affected Area C)
- G16 (TPH-affected Area E)

Soil samples will be collected for chemical analysis at 5, 10, 15, and 20 feet or immediately above first groundwater (whichever comes first). Samples will not be collected in saturated soils for analysis of chemical parameters. All collected soil samples will be analyzed for the following:

- total petroleum hydrocarbons (TPH) full range including mineral spirits by EPA Method 8015M;
- PAHs by EPA Method 8270; and
- to provide additional data to verify sampling results from prior investigations and for the risk assessment, one sample from each boring (8 total; selected based on highest field VOC readings) will also be analyzed for VOCs by EPA Method 8240.

2.3.2 Groundwater Sample Collection

Groundwater samples will be collected from 6 of the 8 borings where soil samples are to be collected. A water sample will be collected at the boring placed adjacent to the following locations:

- B10/G8
- B7/G26
- B5/G9
- G22
- G24
- G16

Each water sample will be analyzed for VOCs by EPA Method 8240 which includes chlorinated and aromatic VOCs.

2.3.3 Analysis of Physical Soil Parameters for Input into the Risk Assessment

For this project, sampling is also designed to provide Subject Site-specific parameters for input into the risk assessment, prepared to establish clean up levels for the Subject Site. Establishing cleanup parameters using risk-based technology requires an understanding of chemical migration in soil and groundwater as well as potential exposure routes. The use of Subject Site-specific parameters will provide a more realistic estimate of potential exposure; default modeling parameters are normally very conservative and result in lower cleanup levels than are generally necessary to protect human health and the environment.

For purposes of analyzing specific physical parameters in the vadose zone for input into the risk assessment, distinct lithologic zones have been identified from previous sampling. Because it has been several years since sampling has been performed on the Subject Site and confined or semi-confined groundwater conditions exist beneath the Subject Site, the current depth to water is uncertain. Risk assessment calculations are planned only for vadose zone soils, therefore, soil sampling will not be performed in the saturated zone. Following is a list of the appropriate depths for sampling of each lithologic zone previously identified on the Subject Site:

- Fill material at 2 feet in depth,
- Silty clay at 7 feet in depth,
- Silt from 10-12 feet and 14-20 feet in depth (depending on area of Subject Site),
- Clay aquitard encountered at 22-32 feet in depth (depending on area of Subject Site).

One boring (B6/G25) will be drilled and sampled continuously to groundwater depth to verify the above lithology prior to sample collection for physical soil parameters. At the bottom of this boring, to facilitate groundwater transport and retardation calculations, one sample will be collected in the saturated zone and analyzed for the following:

- hydraulic conductivity;
- organic carbon content;
- bulk density; and
- porosity.

Depending on depth to water, samples will be collected in the vadose zone at two locations (B-4/G5 and B-10/G8) from the fill material, silty clay, and silt lithologies (maximum of six samples). Samples will be collected at B7/G26 from all of the previously mentioned lithologies (maximum of 4 samples) including the clay aquitard (if the aquitard is a portion of the vadose zone). A maximum of ten samples will be analyzed for the following risk assessment parameters:

- Organic carbon content,
- Bulk density,
- Total porosity, and
- Total moisture content.

Samples will be collected according to the protocols included as Attachment A. Sample analysis will be performed on a standard two week turnaround time basis.

2.4 TASK 4.0 RISK ASSESSMENT PREPARATION

The method proposed for risk assessment preparation is based on the conceptual approach outlined in the American Society for Testing and Materials (ASTM) standard *Risk-Based*

Corrective Action for Petroleum Release Sites (RBCA). The major objectives of the RBCA process are:

- to establish the actual and potential risks to human and ecological health and the environmental (groundwater) quality posed by a release and the urgency of the threat;
- to select remedial response(s) that address these risks within an appropriate time frame.

The scope of the proposed risk assessment is described below:

- **Characterize, Assess, and Categorize Site:** The initial Subject Site characterization described in the background section of this workplan will be updated with the additional information obtained from the sampling results described in Task 3.0. This updated assessment will be included in the workplan to be submitted to the regulatory agency.

- **Select Chemicals of Interest (COIs):** Following the additional Subject Site investigation, the results will be reviewed to identify the chemicals for which Site Specific Target Levels (SSTLs) will be developed. If high levels of TPH are found and benzene, toluene, ethylbenzene, and total xylenes (BTEX) or PAHs are found in substantial concentrations, McLaren/Hart may select surrogate compounds to represent the TPH (this is similar to the Massachusetts Department of Environmental Protection method and the TPH Working Group approach; and provides a framework within which to evaluate TPH impact). The selection of the surrogate compound(s) will be based on information on the composition of the TPH described by the laboratory. The selection process will also consider the availability of data on the physical, chemical, and biological properties of the potential surrogate chemicals. For each COI, appropriate toxicity criteria will be identified. These criteria include Maximum Contaminant Levels (MCLs) for drinking water, USEPA noncarcinogenic reference doses (RfDs), and USEPA and/or California cancer slope factors (CSFs).

- **Identify Receptors and Exposure Pathways:** A review of the Subject Site conditions, land uses, and groundwater uses in the Subject Site vicinity will be performed to identify potential receptors and points of compliance that are reasonable but are not

directly on the Subject Site. For each receptor, the potentially complete exposure pathways (both direct and indirect) will be identified.

- **Calculate SSTLs:** SSTLs will be developed using the exposure, fate, and transport modeling algorithms in the RBCA standard. Subject Site-specific characteristics will be used in place of default data. SSTLs will be developed for two conditions: a reasonable maximum exposure (RME) case and an average or typical case. The RME is based on high end estimates of parameters (such as exposure durations for industrial workers of 25 years), while average case parameters are based on middle or representative values. McLaren/Hart will consider exposures to both residential and industrial/commercial receptors. Selection of the appropriate receptor(s) for any reports to agencies will be based on the Subject Site conditions and potential future land uses. The calculation of SSTLs also involves establishing maximum acceptable risk levels (i.e. cancer risks between 1×10^{-6} and 1×10^{-4}), this level will be selected based on discussions with the agencies, as appropriate.

- **Report:** The analysis and approaches used to develop the SSTLs will be incorporated into the report submitted to the agency as described in Task 5.0. The risk assessment portion of the report will provide tables of input parameter values and results which will allow a reviewer to confirm that the SSTLs were appropriately calculated.

The SSTLs will be used to determine whether additional action is necessary for the Subject Site. Assuming residual concentration are below the relevant SSTL, further actions (i.e., remediation) would not be warranted.

2.5 TASK 5.0 REPORT PREPARATION

A report will be prepared following receipt of the final analytical laboratory data report and performance of the risk assessment for to the RWQCB. After submittal of the report, a meeting will be scheduled with the RWQCB to discuss the proposed cleanup levels.

The report will include a Subject Site location map, a Subject Site plot plan showing the sample locations, a description of sampling protocols, a summary of the analytical data including results from the previous investigation, and the final laboratory analytical data sheets.

3.0 SCHEDULE

Agency comments can be addressed within two to four weeks. Preparation for field work and sampling can be completed within two weeks. Laboratory turnaround time is standard at two weeks. Risk assessment activities can take place after receipt of final sampling results and applicability of low risk status is known. Finalization of the risk assessment will take approximately four weeks following the receipt of final lab results. The entire project as proposed (including one month of agency review time for the workplan) is anticipated to take four months.

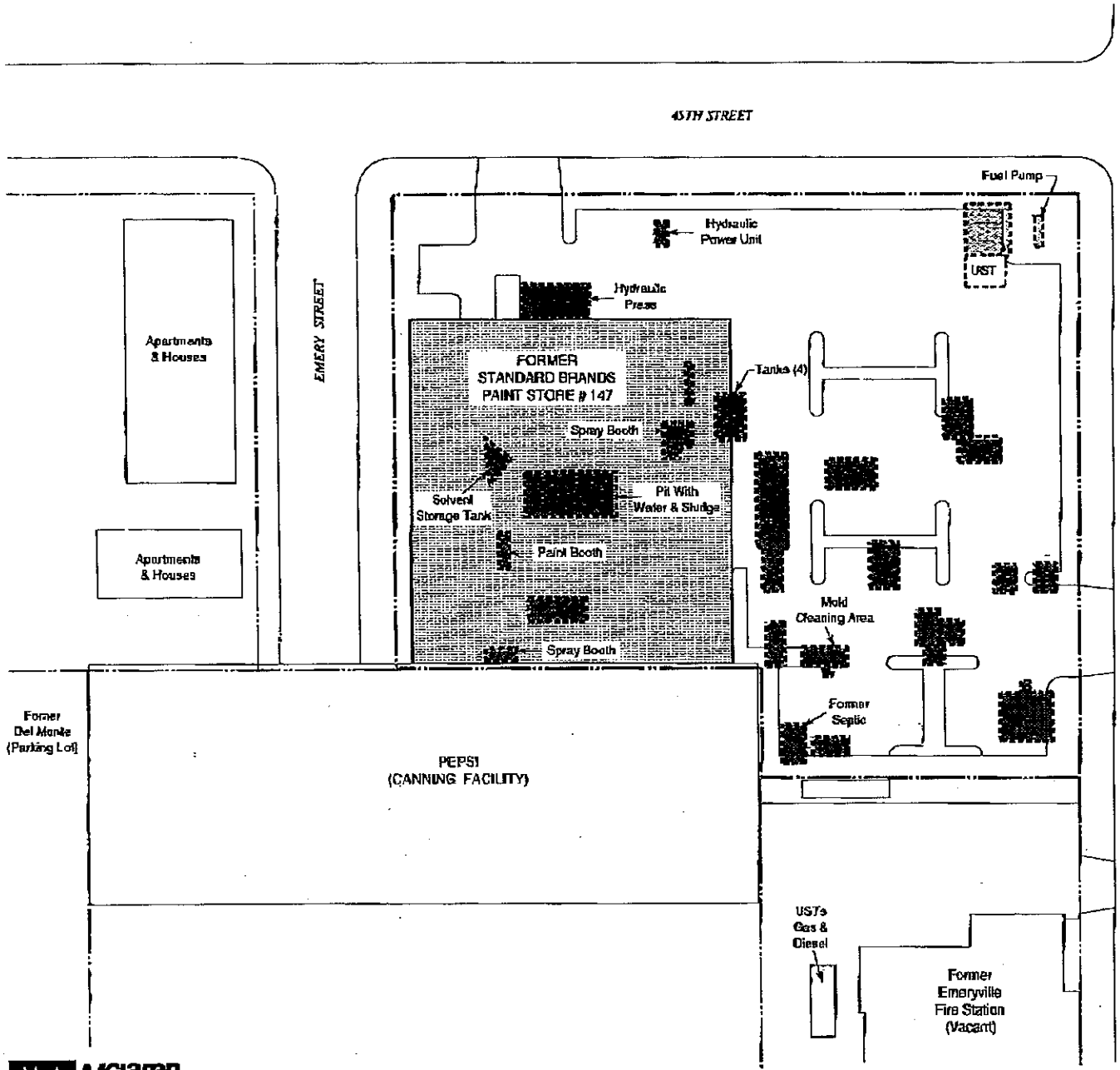

FIGURE 1
FORMER CHEMICAL USE AREAS OLIVER TIRE & RUBBER CO. / OIL & GAS DEPOT

LEGEND

- Property Boundary
- Neighboring Property Boundaries
- Underground Storage Tanks
- Former Sump (Approximate Location) (From Demo Plan)
- Former Chemical Use Area (From 1971 Plan)
- Former Standard Brands Paint Store
- Former Oil & Gas Depot Location
- Neighboring Properties

Notes:
This Map Show Environ's Interpretation Of Former Oliver Tire and Rubber's Chemical Use Areas Based On A 1971 Plot Plan On File At The Emeryville Building Department.

Source: Taken from Environ report dated Aug. 18, 1995.

1. City of Emeryville Building Department file Map of former Oliver Tire and Rubber Co., 7/29/71.
2. Charles A. Campanella, Inc. Building Demolition Notes Demolition of Oliver Tire Site, Approximately 1985 (locations are approximate).
3. Pacific Aerial Surveys Photo Number AV-28-12-30, 08/16/49.
4. 1950 Sanborn Map

0 40'
SCALE

McLaren Hart

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FIGURE 2
ENVIROPRO BORING LOCATIONS

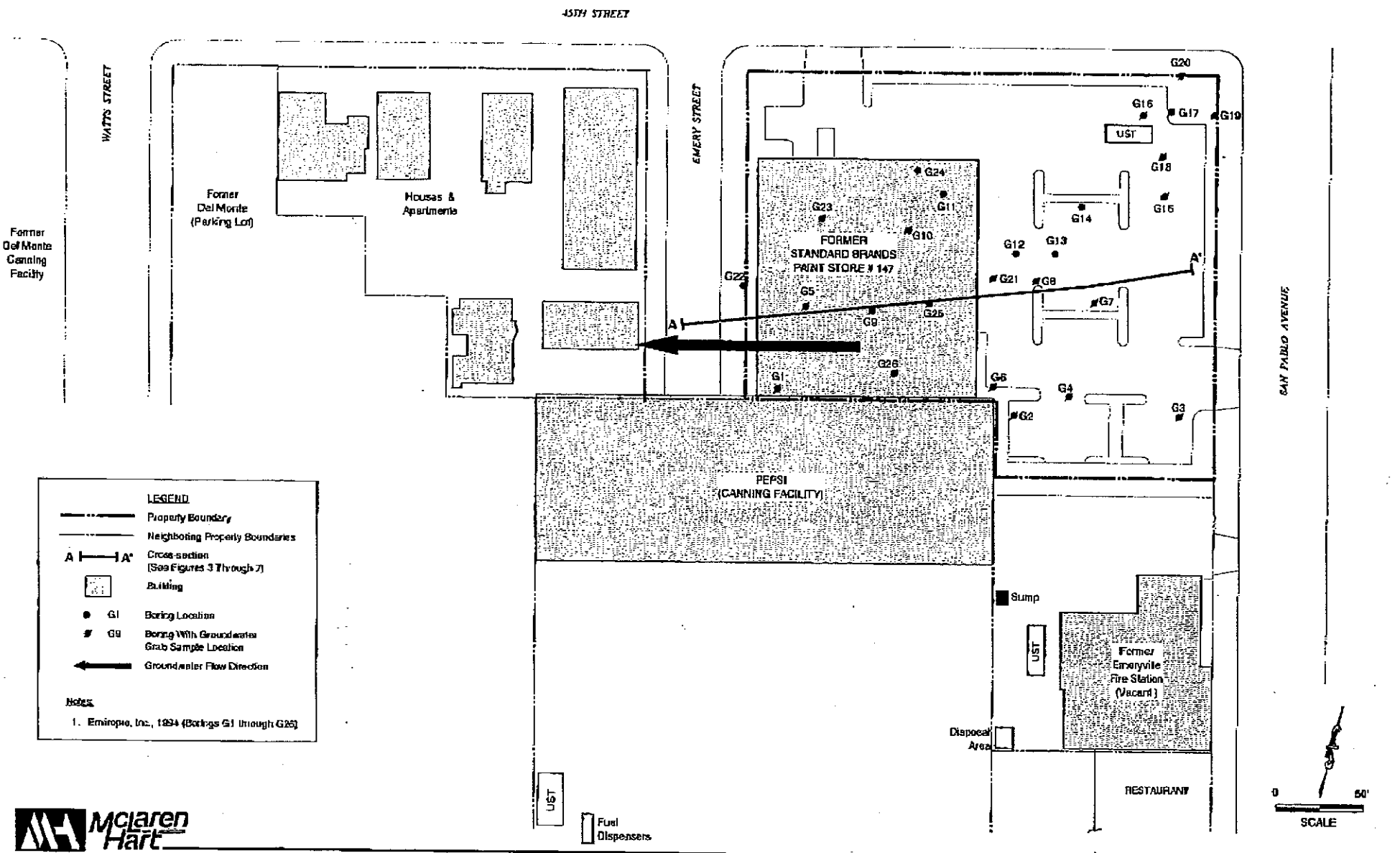

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FIGURE 3
ENVIROPRO AND ENVIRON LOCATIONS

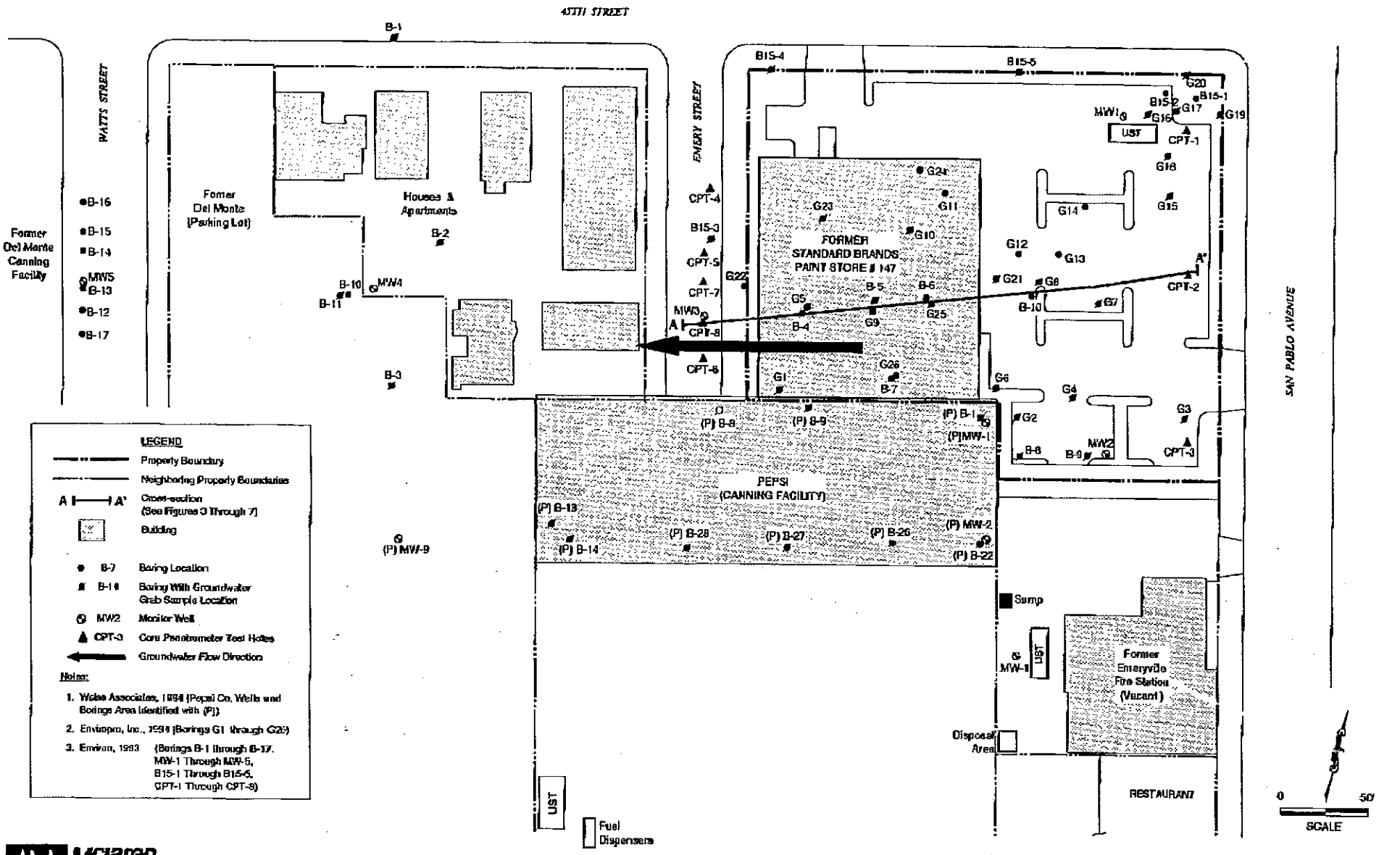

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FIGURE 4
GROUNDWATER SAMPLING LOCATIONS

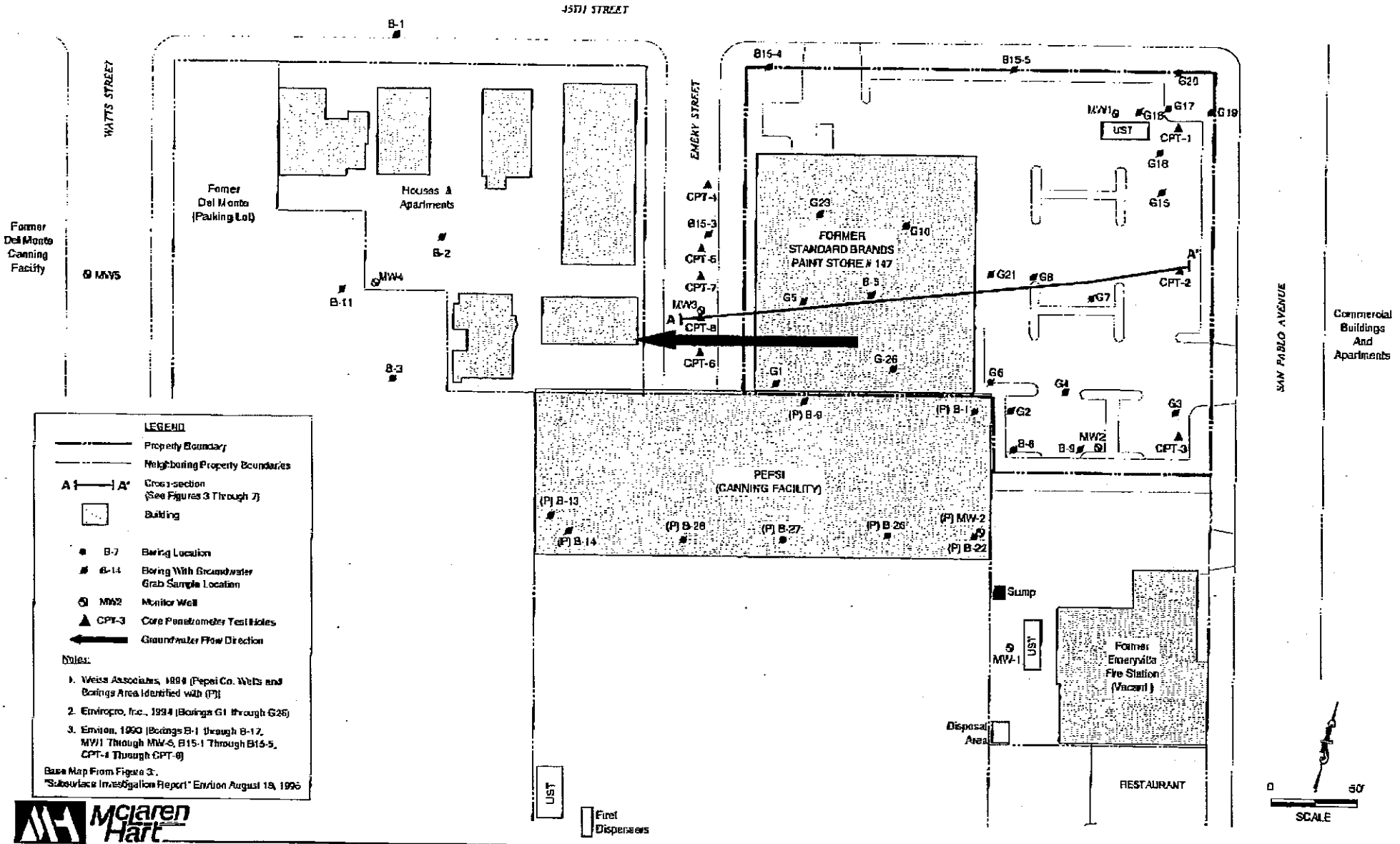

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FIGURE 5
TPH-AFFECTED AREAS

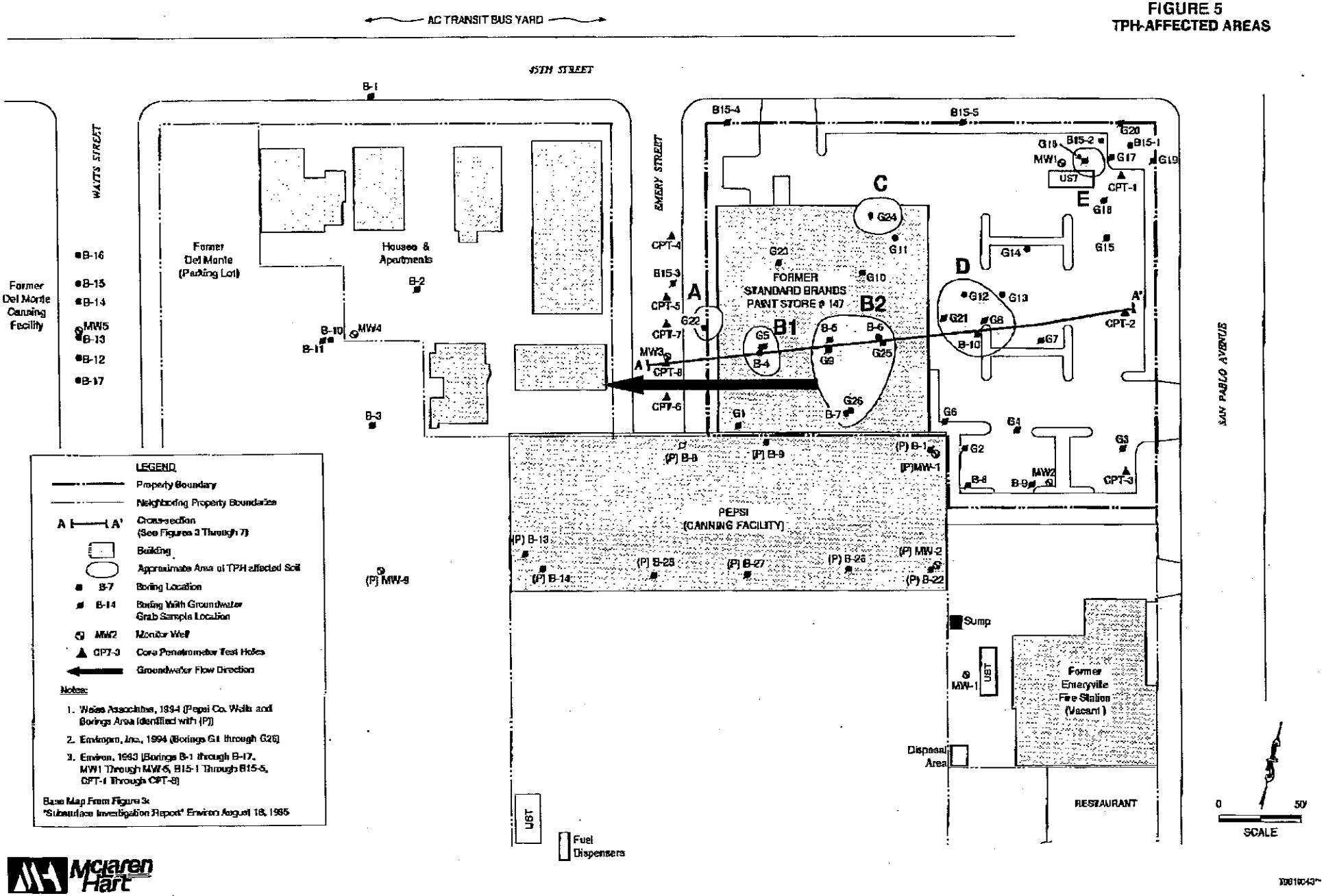

FIGURE 6
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IMPACTED AREA

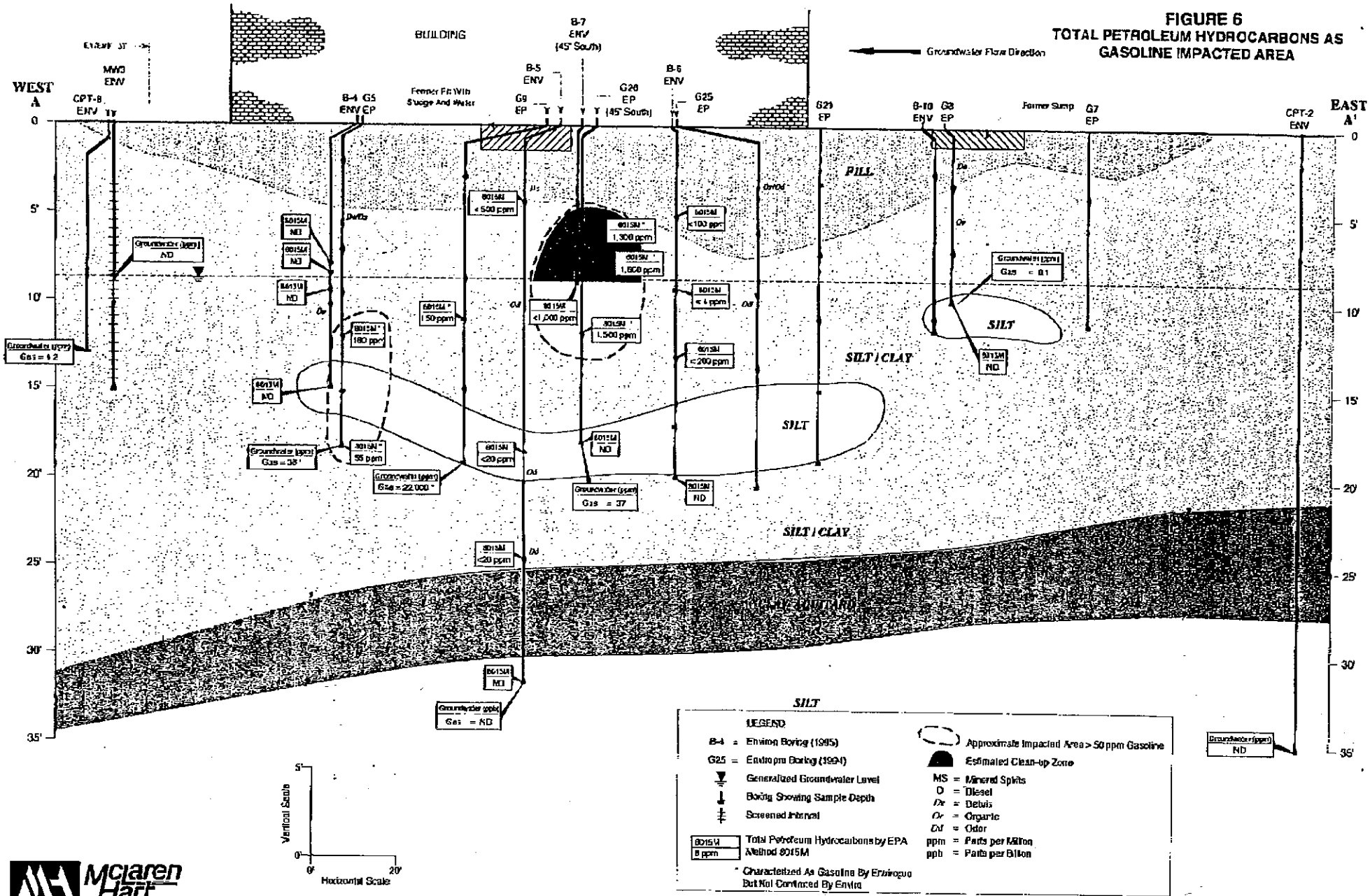

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FIGURE 7
DIESEL & MINERAL SPIRITS IMPACTED AREA

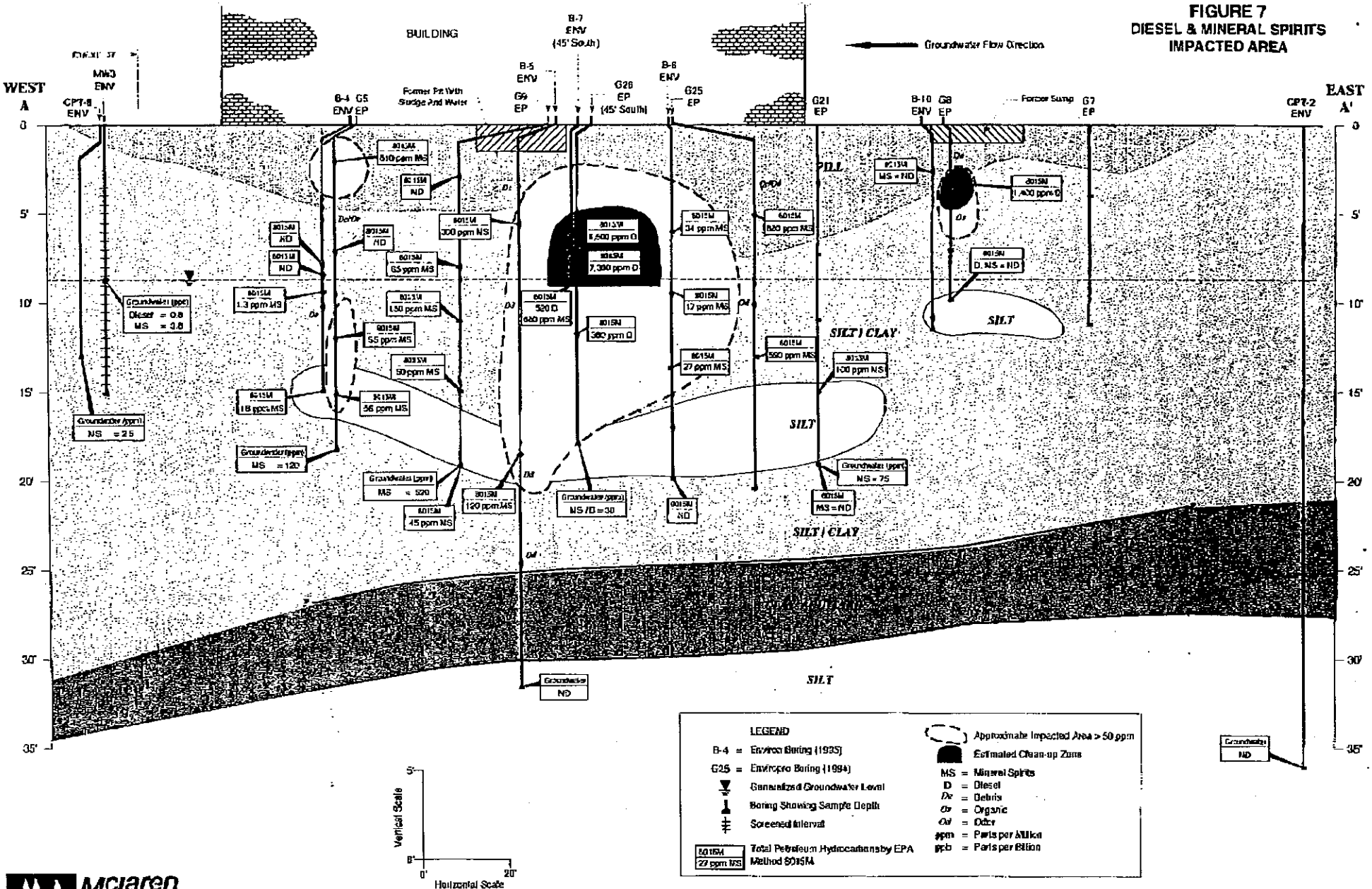

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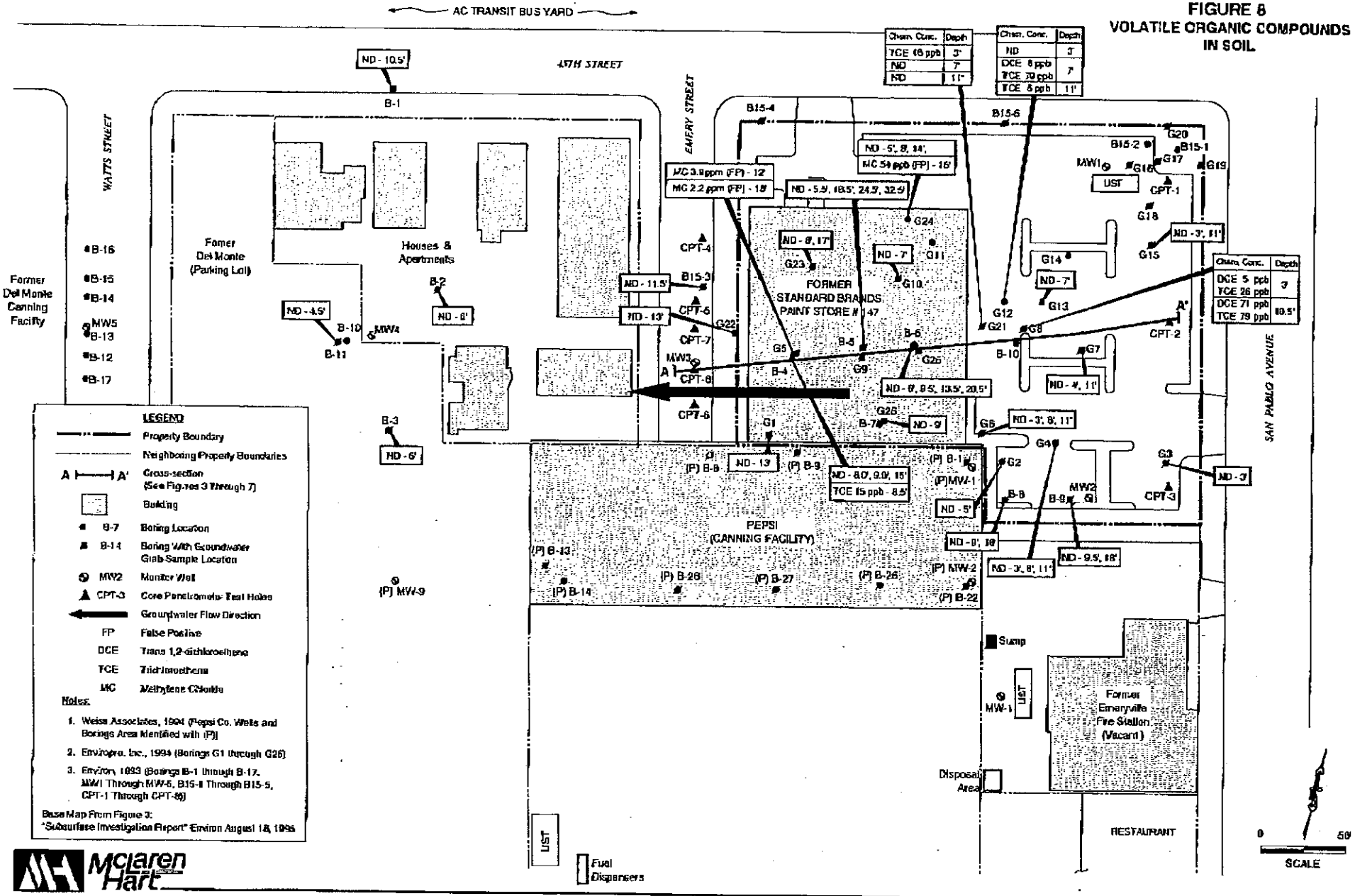
FIGURE 8
VOLATILE ORGANIC COMPOUNDS IN SOIL



Chem. Conc.	Depth
TCE 68 ppb	3'
ND	7'
ND	11'

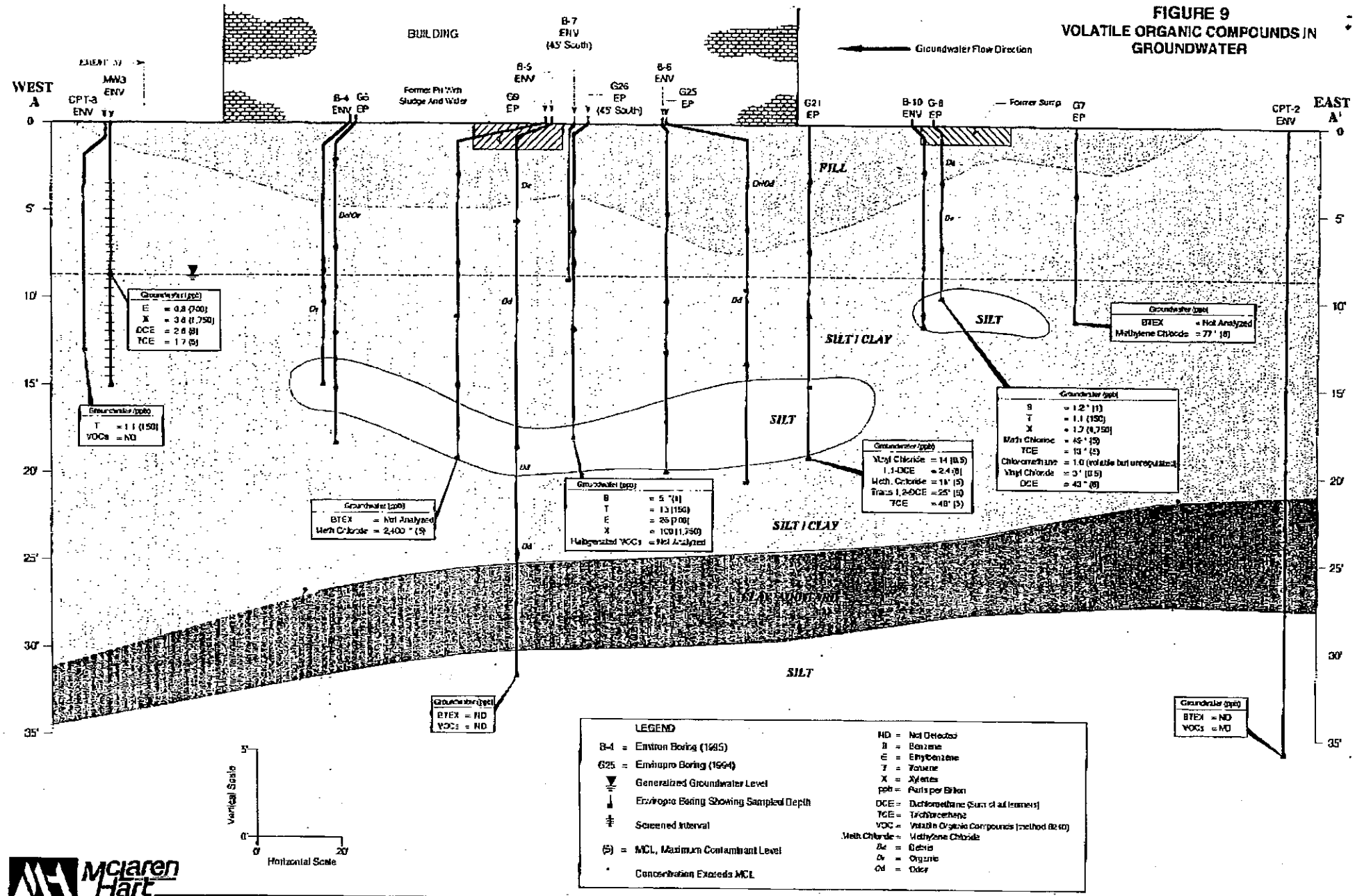
Chem. Conc.	Depth
ND	3'
DCE 6 ppb	7'
TCE 79 ppb	
TCE 8 ppb	11'

Chem. Conc.	Depth
DCE 5 ppb	3'
TCE 26 ppb	
DCE 71 ppb	10.5'
TCE 79 ppb	

McLaren Hart

T961004d

FIGURE 9
VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER



McLaren Hart

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