

PACCAR
Automotive,
Inc.

Corporate Headquarters

1400 N. Fourth Street
Renton, WA 98055
(206) 251-7600
Fax (206) 251-7763

May 6, 1993

Mr. Ron Owcarz
Alameda County Environmental Health Department
Hazardous Material Division
80 Swan Way, Room 200
Oakland, CA 94621

**RE: Soil Remediation Progress Report, Hydraulic Hoist Removal Site,
Former Grand Auto Store, 2512 107th Avenue, Oakland, California**

Dear Mr. Owcarz,

Please find enclosed a copy of the Soil Remediation Progress Report, Hydraulic Hoist Removal Report, Former Grand Auto Store, 2512 107th Avenue, Oakland, California 94603. Five hydraulic hoists and reservoirs were removed from the store service shop area on December 23 and 24, 1992.

Ten samples were taken, one from the bottom of each hoist and reservoir pit. The samples were analyzed for total petroleum hydrocarbons in both the diesel and motor oil ranges (TPH-d and TPH-m) and polychlorinated biphenyls (PCBs). Total petroleum hydrocarbon in the motor oil range was present in all five samples collected from the reservoir pits and one from the hoist pit. Concentrations of petroleum hydrocarbons in the diesel fuel range were not detected in all 10 samples.

Based on the laboratory test results, four reservoir pits and one hoist pit were over-excavated. PAI was unable to over excavate one reservoir pit due to a concern of structural integrity of the building. Results of the chemical analysis indicate that none of the final verification soil samples contain the targeted petroleum hydrocarbons greater than laboratory reporting limits.

A structural engineer visited the site on March 25, 1993 and inspected the condition of the exposed column footing near the reservoir pit. The structural engineer recommended that the pit be temporarily backfilled to prevent any damage to the integrity of the structure. Based on this recommendation all pits were backfilled with clean fill on April 14, 1993.

AllWest has recommended that a one-time groundwater sampling program be implemented at or near the reservoir pit using either a hydro-punch or temporary well method. In addition, a four quarter groundwater monitoring program should be implemented with the installation of one down-gradient well outside of the building.

Distribution Centers

7200 Edgewater Drive
Oakland, CA 94621
(510) 577-2500
Fax (510) 430-2576

1701 Pike Street NW
Auburn, WA 98001
(206) 351-3200
Fax (206) 931-3884

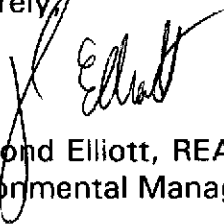


Mr. Ron Owcarz
May 6, 1993
Page Two

Should non-detectable levels of hydraulic fluids in site groundwater samples result from this groundwater investigation program, a "No Further Action" determination for the subject site is requested from the regulatory agency.

Please contact me at (510) 577-2569 if you have any questions concerning the soil remediation progress report. Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Elliott", written over the typed name.

Raymond Elliott, REA, CHMM
Environmental Manager

enclosure

cc: Mr. L. Ching - AllWest
Mr. L Sims - Paccar, Inc
Mr. J. Beynon - PAI



AllWest

AllWest Environmental, Inc.

Specialists in Environmental Due
Diligence and Remedial Services

SOIL REMEDIATION PROGRESS REPORT

**Hydraulic Hoist Removal Site
Former Grand Auto Store
2512 107th Avenue
Oakland, California**

PREPARED FOR:



AllWest Environmental, Inc.

Specialists in Physical Due
Diligence and Remedial Services

One Sutter Street, Suite 600
San Francisco, Ca 94104
Tel 415.391.2510
Fax 415.391.2008

SOIL REMEDIATION PROGRESS REPORT

Hydraulic Hoist Removal Site
Former Grand Auto Store
2512 107th Avenue
Oakland, California

PREPARED FOR:

Mr. Raymond Elliott, CHMM, REA
PACCAR Automotive, Inc.
7200 Edgewater Drive
Oakland, California 94621

ALLWEST PROJECT 92198.25
April 30, 1993

PREPARED BY:

Long Ching, P.E.
Senior Project Manager

REVIEWED BY:

Gary Farthing, R.E.A.
Senior Associate

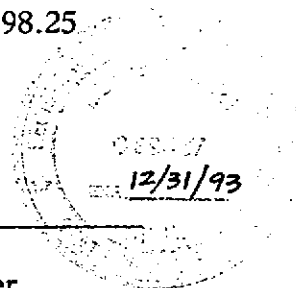


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FIGURES

Figure 1 - Site Location Map

Figure 2 - Site Plan

APPENDICES

Appendix A - Site Photographs

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EXECUTIVE SUMMARY

AllWest Environmental was retained by *PACCAR Automotive, Inc.* to oversee and document the remediation of soils impacted by hydraulic oils that leaked from five former underground hydraulic hoists located in the former *Grand Auto Store* at 2512 107th Avenue in Oakland, California. A total of four over-excavation pits, covering one former hoist site and five former reservoir sites, were excavated by *Stokley Construction* on March 18, 1993. Impacted soils were removed from the over-excavation and temporarily stockpiled on-site awaiting disposal.

At the completion of the over-excavation at pits H-5, T-1/T-2, and T-5, verification soil samples were collected from the bottom and side walls of these enlarged hoist/reservoir pits to document the effectiveness of the impacted soils removal. A total of 8 verification soil samples were collected on March 18, 1993. During the over-excavation of reservoir pit T-3/T-4, a column foundation was encountered at the edge of the enlarged pit. Even though stained soils were still visible at a depth of 8 feet, further excavation was not attempted for because of building structural safety concerns. Two investigative soil samples were collected at pit T-3/T-4 to evaluate the extent of soil staining.

Verification samples were submitted to *California Laboratory Services* under chain-of-custody protocol for analysis of total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as motor oil (TPH-m), and polychlorinated biphenyls (PCBs). Investigative samples were analyzed for TPH-d and TPH-m only. Results of the chemical analyses indicate that none of the final verification soil samples contain the targeted petroleum hydrocarbons in concentrations greater than laboratory reporting limits. This demonstrates that the over-excavation effectively removed all hydraulic oil impacted soils from pits H-5, T-1/T-2, and T-5. Results of investigative samples indicate hydraulic oil impacted soils extended at least 13 feet below the ground surface at pit T-3/T-4.

A structural engineer from *Culley Associates* visited the site on March 25, 1993 and inspected the condition of the exposed column footing near pit T-3/T-4. The structural engineer recommended that the pit be temporarily backfilled to prevent any damage to the integrity of the structure. Based on this recommendation, pit T-3/T-4 along with all other open pits were backfilled by *Stokley* with clean fill on April 14, 1993.

To demonstrate that the groundwater at the site has not been and most likely will not be impacted by any remaining hydraulic oil impacted soils, *AllWest* recommends that a limited groundwater sampling and testing program be conducted at the site. The limited groundwater investigation program should include a one-time groundwater sampling at the T-3/T-4 pit and a four-quarter groundwater monitoring program with one down-gradient well. *AllWest* also recommends that a copy of this report be sent to the *Alameda County Department of Environmental Health* for concurrence of report conclusions and recommendations.



**SOIL REMEDIATION PROGRESS REPORT
FORMER GRAND AUTO STORE
2512 107TH AVENUE, OAKLAND, CALIFORNIA**

I. INTRODUCTION

This progress report presents the results of a remedial program to remove hydraulic oil impacted soils associated with five former underground hydraulic hoists at 2512 107th Avenue, Oakland, California. The report covers the remedial activities during the period of March 16 and April 20, 1993. Included in this report are (1) a brief overview of the site's background, (2) a summary of site activities and observations associated with the excavation of impacted soils, (3) an explanation of verification sampling procedures and locations, (4) a presentation of analytical results, (5) a discussion on the effectiveness of remedial work performed and remaining work to be accomplished, and (6) recommendations on waste soil disposal, site restoration, and post-remedial monitoring.

II. SCOPE OF WORK

AllWest's project management services for this soil remedial program, as outlined in a service agreement dated January 22, 1993 and authorized by *PACCAR Automotive*, include:

1. Act as the overall Project Manager for soil remediation and site restoration;
2. Obtain a written cost estimate for impacted soil removal and site restoration from a qualified contractor, and coordinate the submittal of contract documents to *PACCAR Automotive*;
3. Supervise the over-excavation of hydraulic oil impacted soil, collect soil samples for submittal to a California State Department of Health Services (DHS) certified laboratory for verification analysis, monitor waste soil disposal and site restoration work; and,
4. Prepare written reports on soil remediation for submittal to regulatory agency and facilitate the request for final site closure.

III. SITE BACKGROUND

The subject site is located within a neighborhood shopping center at the southeast corner of 107th Avenue and MacArthur Boulevard in Oakland, California. It is about 6 miles southeast of downtown Oakland, between Highways I-580 and I-880. The surrounding properties are primarily residential with some commercial developments along MacArthur Boulevard. A Site Vicinity Map is presented in Figure 1 of this report. The shopping center building that housed the *Grand Auto Store* is at the southern half of the property. The underground hydraulic hoists were located in the southwestern part of the building in the former service area. The hoists were used to lift vehicles for repair or service. The locations of the hoists, in relation to the building floor plan, are shown on the Site Plan, Figure 2.

The *Grand Auto Store* at the subject site ceased operation in November of 1992. The five hoists along with associated reservoirs and piping were designated for removal as part of the store closure program. The hoist removal was performed by *Stokley Construction* and under the observation of *AllWest* on December 23 and 24, 1992. Verification analyses results from soil samples collected below the hoist cylinders and reservoir tanks indicated that concentrations of high boiling point petroleum hydrocarbons from "non-detected" levels to 10,000 parts per million (ppm) were present. The results indicated that site soils had been impacted by hydraulic oils from the operation of those hoists. Hoist removal activities and laboratory results were documented in a report that was dated January 11, 1993, and prepared by *AllWest*. Due to the discovery of impacted soils, a copy of the hoist removal report was submitted to the *Alameda County Department of Environmental Health Hazardous Materials Division* (ACDEHHMD), the local regulatory agency.

Following the discovery of hydraulic oil impacted soils at the site, a work plan to remediate the problem was formulated by *AllWest*. Based on the fact that hydraulic oil is very viscous and that the groundwater level at the site area is generally about 20 feet deep, *AllWest* concluded that the release of hydraulic oil posed no threat to groundwater quality and that the soil problem could be mitigated by over-excavating the hoist pits. The over-excavation option for soil remediation was discussed with and verbally approved by the case officer, Mr. Ronald Owcarz of ACDEHHMD on March 10, 1993. A written soil remedial work plan, dated March 15, 1993, was submitted to and subsequently approved by *PACCAR Automotive*.

IV. SOIL REMEDIAL ACTIVITIES

Stokley Construction, a licensed engineering contractor from Tracy, California with a hazardous material classification, provided contractual services associated with pit over-excavation, waste soil disposal, and site restoration. The over-excavation activities commenced on March 18, 1993. The concrete slab around the open hoist pit was first removed to expose additional soils. Then, a backhoe with a one-foot wide bucket was utilized to widen, lengthen and deepen the hoist pit.

The hoist pit H-5 was widened and lengthened to about 4 feet by 7 feet and deepened to about 10 feet below ground surface (bgs). Both the reservoir pits T-1/T-2 and T-3/T-4 were widened and lengthened to about 6 feet by 7 feet. Pit T-1/T-2 was deepened to about 6.5 feet bgs while pit T-3/T-4 was deepened to about 8 feet bgs. Reservoir pit T-5 were widened and lengthened to about 4 feet by 7 feet and deepened to about 6.5 feet bgs. During the initial over-excavation of pit T-3/T-4, a column footing was encountered at the northwestern corner of the enlarged pit. Over-excavation was suspended at the depth of 8 feet bgs for concern of building structural integrity even though soil staining was still visible at this depth. All excavated soils were temporarily stockpiled inside the building awaiting final disposal.

In order to evaluate the structural safety of a column footing next to an open pit and to investigate the possibility of continuing over-excavation at pit T-3/T-4, a structural engineering firm, *Culley Associates*, was retained by *PACCAR Automotive*. An engineer from *Culley Associates* visited the site on March 25, 1993 and visually inspected the conditions of the column footing and the open pit T-3/T-4. *Culley Associates* concluded that the installation of extensive shoring and underpinning systems would be required to continue the over-excavation. It was their opinion that the open pit posed a risk to the building safety and should be backfilled immediately.

Based on the recommendations of the structural engineer, pit T-3/T-4 was temporarily backfilled on April 14, 1993 by Stokley Construction with clean, sandy gravel. Plastic sheets were placed on the bottom of the pit to separate the clean backfill material from the impacted soils. The other over-excavated pits were also backfilled on the same day because verification sampling indicated that impacted soils had been successfully removed.

An *AllWest* engineer was on site to observe and record the pit over-excavation and backfill activities. Photographs were taken as part of the documentation process. Selected site photographs during soil remediation work are presented in Appendix A.

V. VERIFICATION SAMPLING AND ANALYSES

A. Verification Sampling

To demonstrate that the over-excavation of the former hoist/reservoir pits had effectively removed all hydraulic oil impacted soils, verification soil samples were collected by an *AllWest* engineer after the completion of over-excavation. Two verification samples, one from the bottom and one from the side wall, from each over-excavated pit were collected. Verification samples were collected from the native soils approximately one foot beyond the limits of over-excavation. A total of 8 discrete soil samples, serving as the verification sampling, were collected on March 18, 1993.

Since some stained soils were still visible in pit T-3/T-4 at a depth of 8 feet, additional soil samples below the over-excavation limit of this pit were collected to investigate the possibility that the extent of soil staining only extended to a few feet further below. A 3-inch diameter bore hole in the middle of the pit was hand augured by an engineer from *AllWest* on April 9, 1993. The bore hole extended 5 feet below the bottom of the pit to a depth of 13 feet bgs. A total of two soil samples, one at a depth of 12 feet and the other at 13 feet, were collected from the bore hole during this investigative sampling.

Sampling procedures employed during this soil remedial work were similar to those described in the *California Water Resource Board's* Leaking Underground Fuel Tank (LUFT) Field Manual. The soil mass at the intended sampling location was brought to the surface by the bucket of the backhoe. Samples were obtained by driving a stainless steel sampler containing brass tubes into soils within two feet below and at the side of each excavation pit using a sliding hammer. After the retrieval of the sampler, the filled tube was removed and examined. Both ends of the tube were then covered with teflon sheeting, capped by plastic end caps, and wrapped with silicon tape. The sealed soil sample was then appropriately labelled and immediately stored on ice. Following sampling activities, the samples were immediately transported and submitted to a DHS certified laboratory under appropriate chain-of-custody protocol.

B. Laboratory Analyses

Samples collected for verification analyses were analyzed by *California Laboratory Services* of Rancho Cordova, California, a California State Department of Health Services (DHS) certified analytical laboratory, for total petroleum hydrocarbons as diesel (TPH-d) and motor oil (TPH-m) by modified EPA Method 8015, and polychlorinated biphenyls (PCBs) by EPA method 8080. The two investigation soil samples from pit T-3/T-4 were analyzed for total petroleum hydrocarbons in both the diesel and motor oil ranges.

As indicated by the analytical results, summarized in the following Table 1, none of the final verification samples analyzed contained detectable concentrations of TPH-d, TPH-m, or PCBs above the laboratory reporting limits. Elevated concentrations of TPH-m were detected in the two investigation samples from pit T-3/T-4. A copy of the certified analytical reports and chain-of-custody records are presented in Appendix B of this report.

TABLE 1			
SUMMARY OF ANALYTICAL RESULTS			
Sample I.D.	TPH-d	TPH-m	PCBs
H-5-B	ND	ND	ND
H-5-S	ND	ND	ND
T-1-B	ND	ND	ND
T-1-S	ND	ND	ND
T-2-S	ND	ND	ND
T-2-S	ND	ND	ND
T-5-B	ND	ND	ND
T-5-S	ND	ND	ND
T-3/4-12	ND (2000)	19000 ppm	N/A
T-3/4-13	ND (2000)	22000 ppm	N/A

Notes: 1. ND = none detected at the laboratory reporting limit
2. ppm = parts per million
3. N/A = not analyzed
4. Unless noted in parenthesis, reporting limit for TPH-d is 10 ppm, for TPH-m is 20 ppm, and for PCBs is 1 ppm.
5. T-1-B = bottom sample from pit T-1
T-1-S = side sample from pit T-1

VI. DISCUSSIONS AND CONCLUSIONS

The results of verification analyses demonstrate that the over-excavation has removed all hydraulic oil impacted soils from the former hoist/reservoir pits H-5, T-1/T-2, and T-5. The investigative samples from pit T-3/T-4 indicate hydraulic oil impacted soils extend to a depth of at least 13 feet. However, due to the proximity of building foundations to the former reservoir sites, further excavation to remove the remaining impacted soils would require extensive underpinning and shoring of the foundation system.

Since hydraulic oil is a very viscous liquid and most site soils are clay, the rate and extent of downward migration due to gravity is expected to be low. Also, because the source of hydraulic oil leakage, i.e. the reservoirs, had been removed and the

impacted soils are situated in the middle of a building underneath concrete floor slab, the probability of downward migration of concentrated contaminants due to leaching effect is considered very low.

During the March 10, 1993 conversation between *AllWest* and the regulator, Mr. Owcarz of Alameda County expressed his concern for the possibility that hydraulic oil may impact the groundwater quality at the subject site. To demonstrate that the groundwater at the site has not been and most likely will not be impacted by the remaining hydraulic oil containing soils, *AllWest* believes that it may be appropriate to conduct a limited groundwater sampling and testing program at the site. The limited groundwater investigation program may include a one-time groundwater sampling at the T-3/T-4 pit and a four-quarter groundwater monitoring program with one down-gradient well.

The purpose of the one-time groundwater sampling is to demonstrate groundwater has not been impacted by hydraulic oil leakage. This one-time sampling may be conducted with either the hydro-punch or the temporary well method. Installing a groundwater monitoring well inside the building is considered unsuitable because of the low ceiling height, the limited accessibility, and the disruption to building usage.

The objective of the four-quarter groundwater monitoring is to demonstrate groundwater will not be adversely affected by the impacted soils remaining in pit T-3/T-4. Quarterly groundwater monitoring may be accomplished by installing a standard 2-inch groundwater well outside of the building and down-gradient from the pit. Should non-detectable levels of hydraulic fluids in site groundwater samples result from these groundwater investigation programs, a "no further action" determination for the subject site may be obtained from the regulatory agency.

VII. RECOMMENDATIONS

Based on the results of this soil remediation program, *AllWest* makes the following recommendations:

1. Forward a copy of this report to the local regulatory agency at the address below to inform the case officer of the progress and results of soil remediation.

Mr. Ronald J. Owcarz, REHS
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

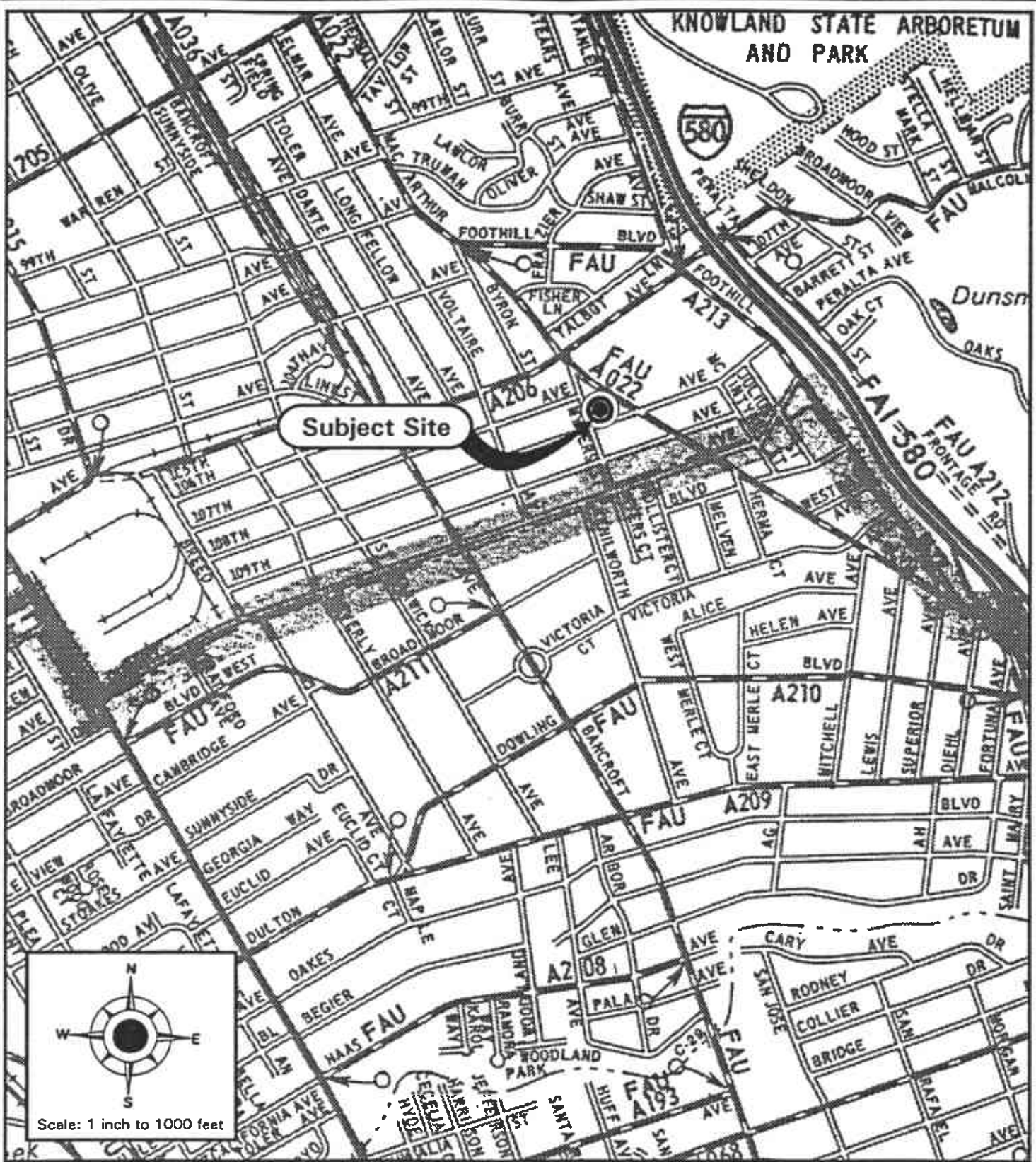
2. Conduct a limited groundwater sampling program to investigate whether the groundwater at the site has been impacted by hydraulic oil or not. At this time, *AllWest* recommends that a one-time groundwater sampling program be implemented at or near the T-3/T-4 pit using either hydro-punch or temporary well method. In addition, a four-quarter groundwater monitoring program should be implemented with the installation of one down-gradient well outside of the building.
3. Direct the remedial contractor, *Stokley Construction*, to dispose waste soils currently stockpiled inside the building. Disposal method should be the previously agreed upon treatment/recycling process, which would relieve *PACCAR Automotive* of all environmental liabilities associated with the disposition of those waste soils.
4. Arrange a meeting with the regulator to obtain regulatory agency approval/concurrence on the above recommended groundwater investigation program.

VIII. LIMITATIONS

AllWest has prepared this report for the client's exclusive use for this particular project and in accordance with generally accepted practices at the time of hoist closure. No other warranties, either expressed or implied, are made as to the professional advises offered.

R92198.25A

FIGURES



April
1993

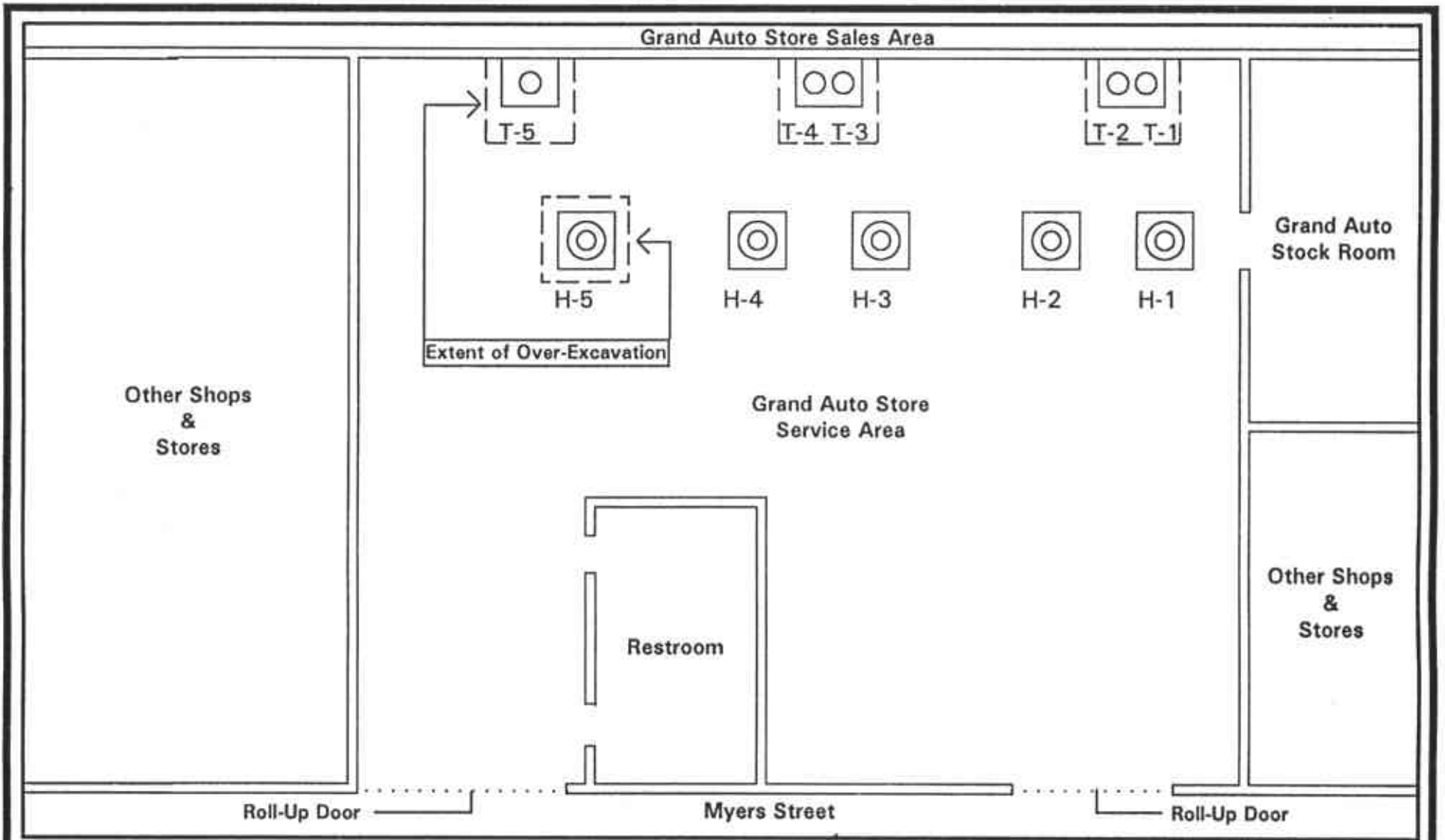
Site Location
Map

Project
92198.25

Figure
1

2512 107th Avenue,
Oakland, California

Source
CA DOT



April 1993

Site Plan

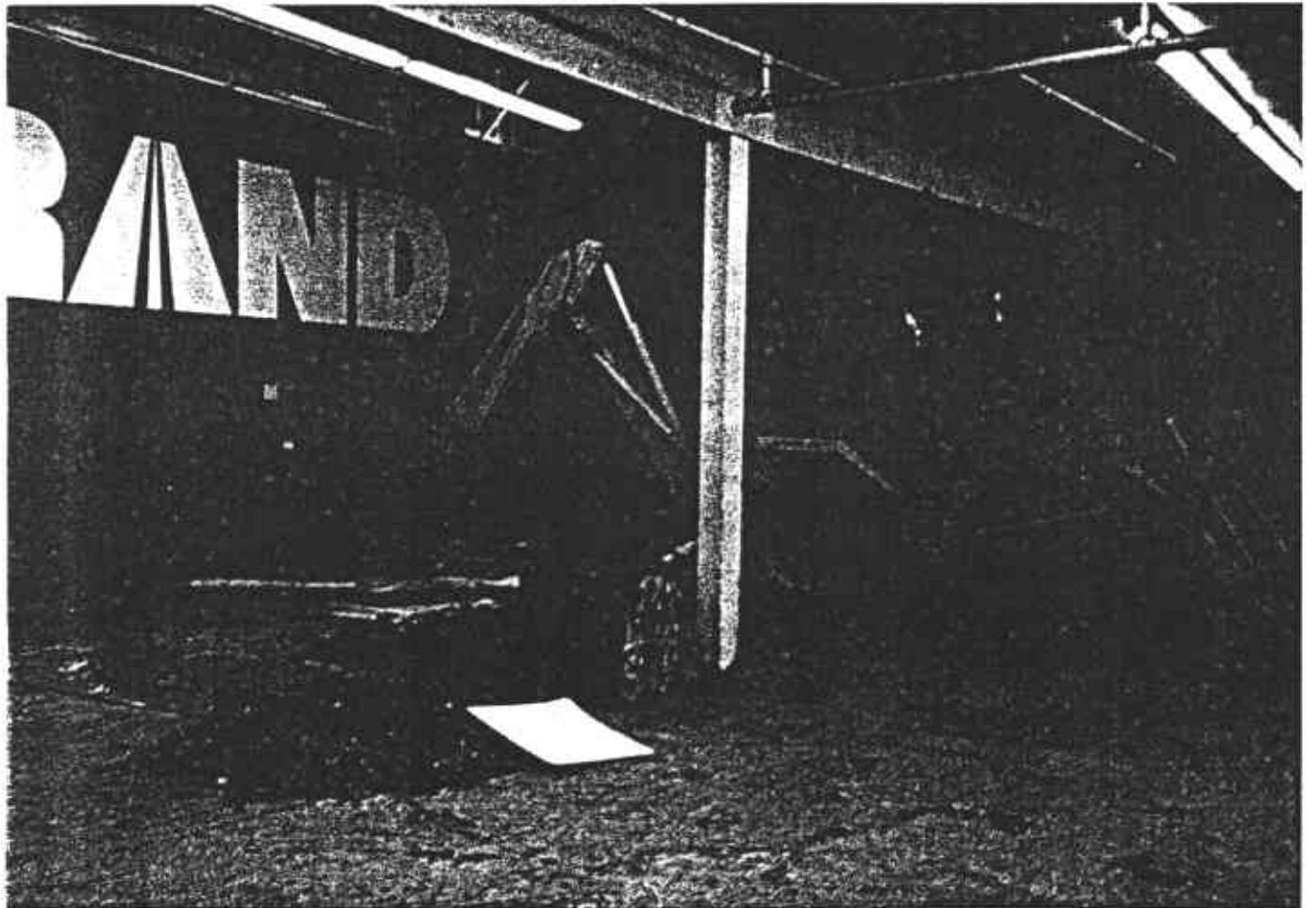
Project 92198.25

Figure 2

2512 107th Avenue,
Oakland, California

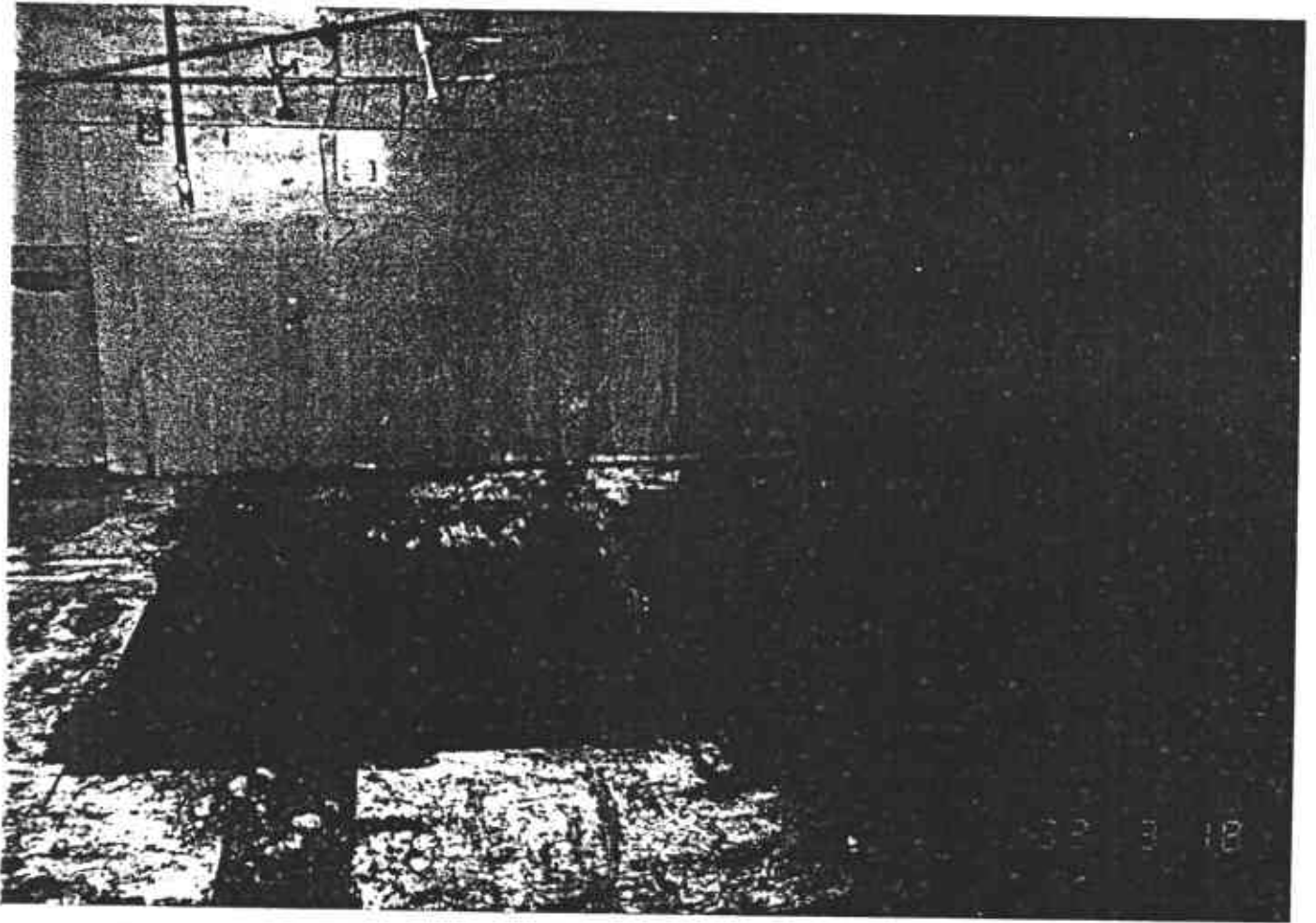
Source
AllWest

APPENDIX A



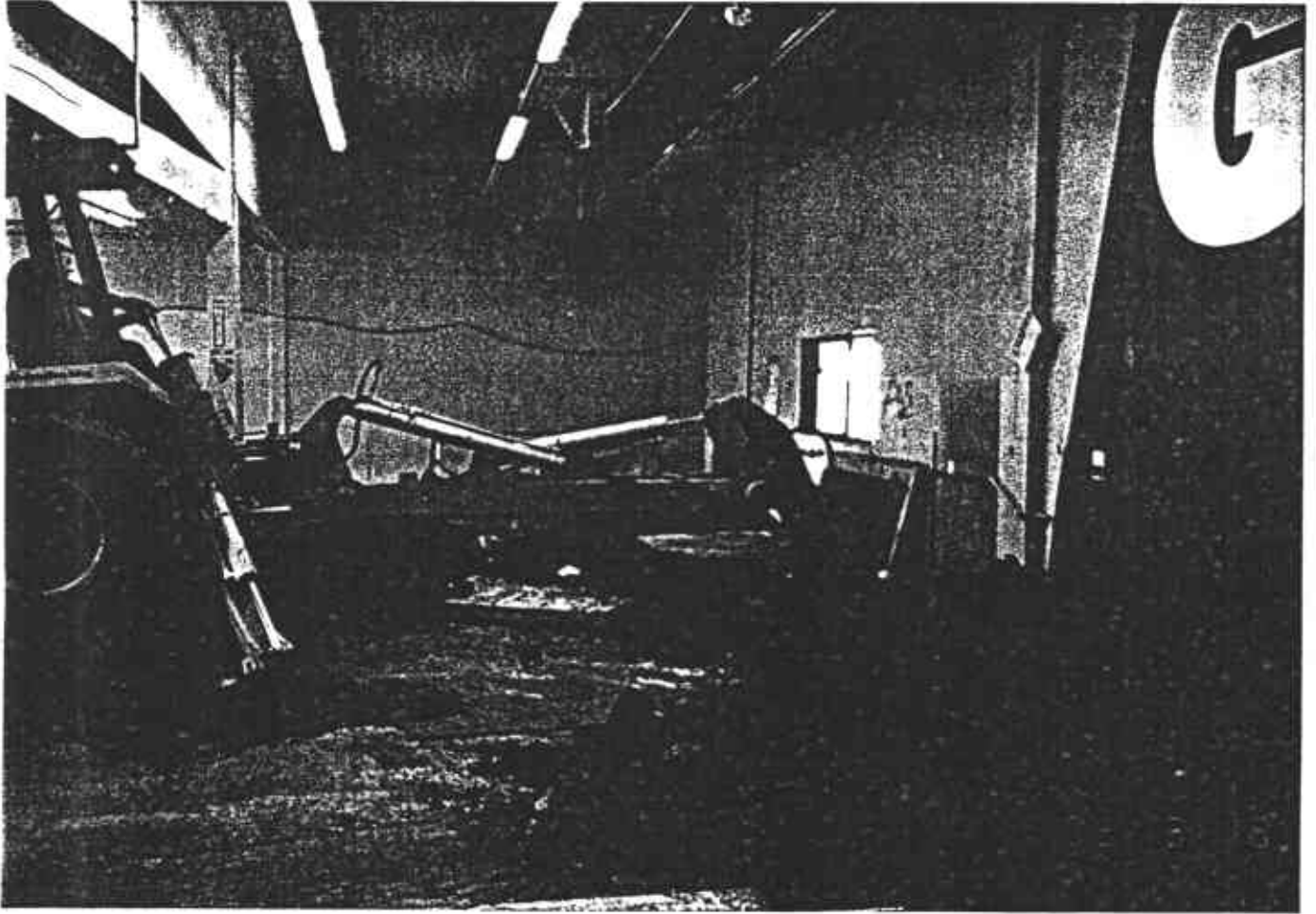
PHOTOGRAPH # 1

View of over-excavation to remove impacted soil from reservoir pit T-1/T-2.



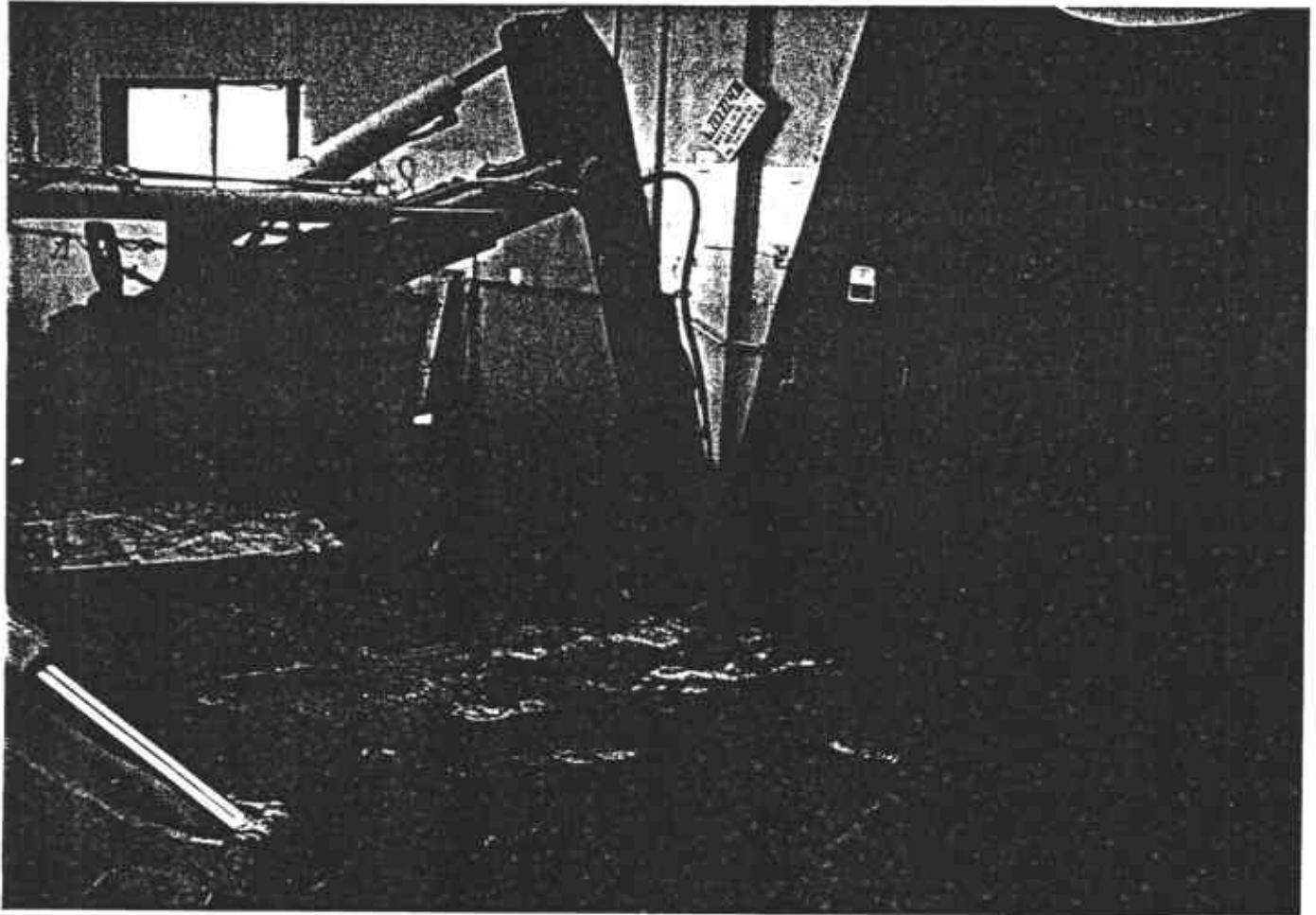
PHOTOGRAPH # 2

View of reservoir pit T-1/T-2 after over-excitation.



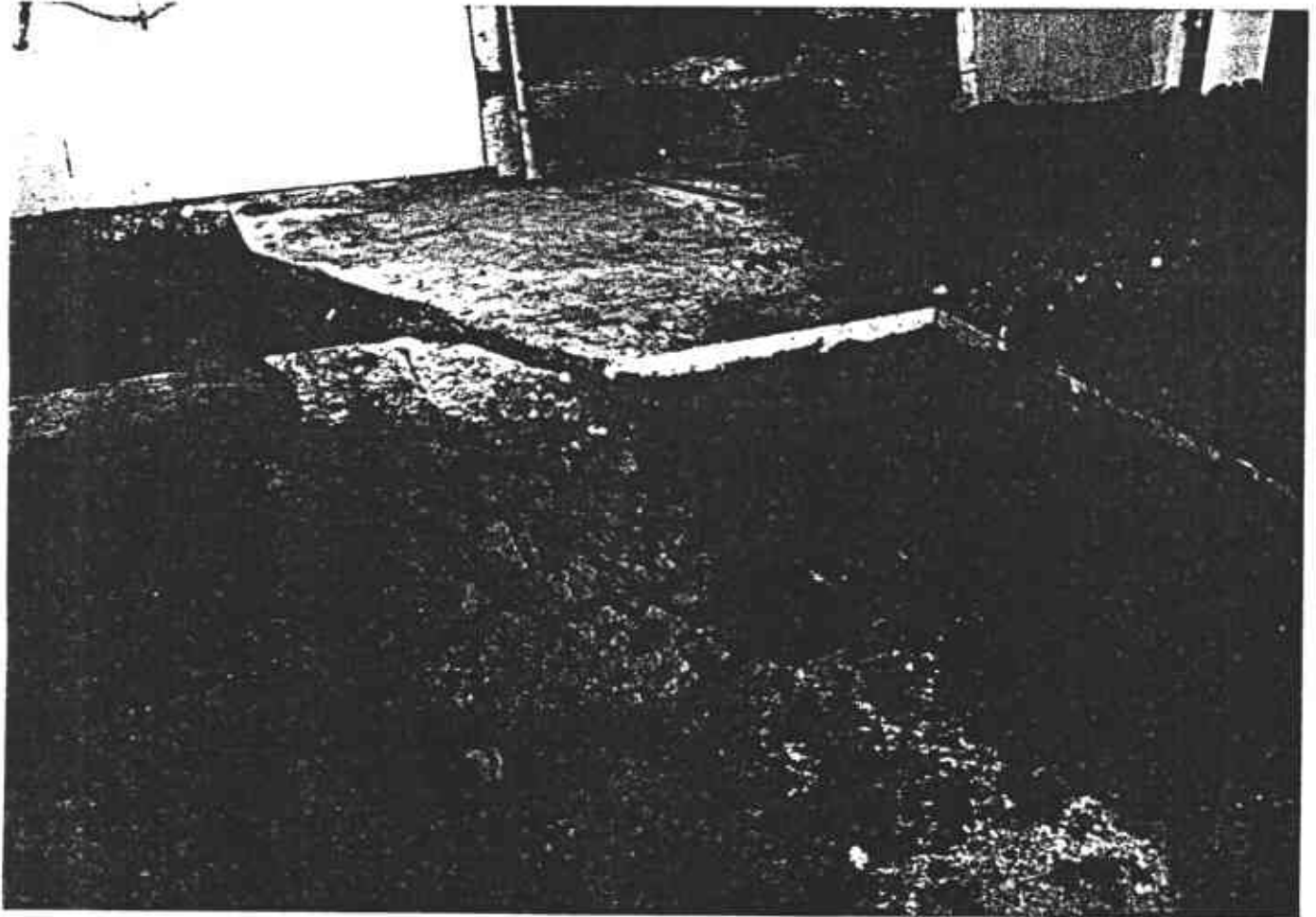
PHOTOGRAPH # 3

View of over-excavation at reservoir pit T-3/T-4.



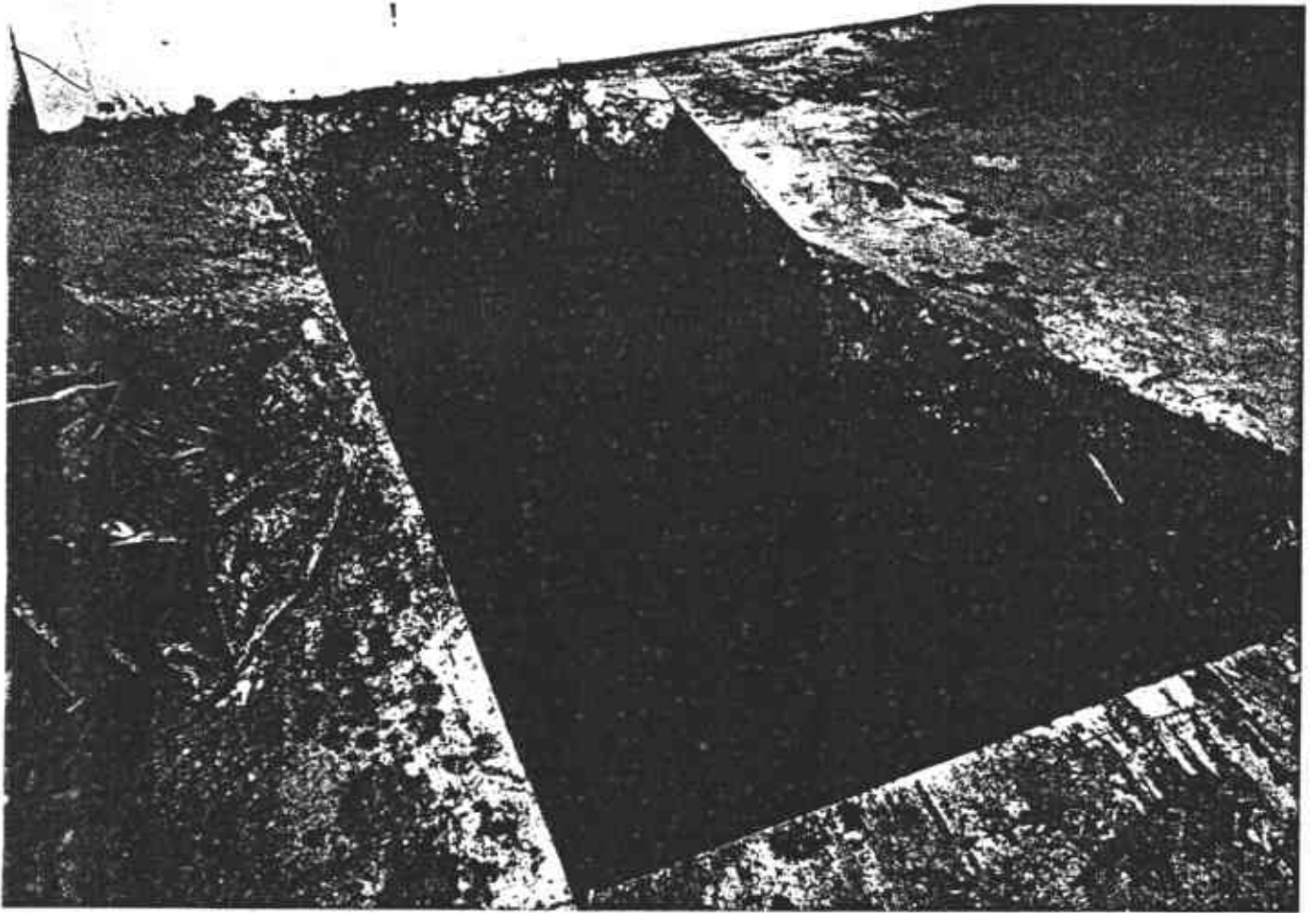
PHOTOGRAPH # 4

View of reservoir pit T-3/T-4 during over-excavation.



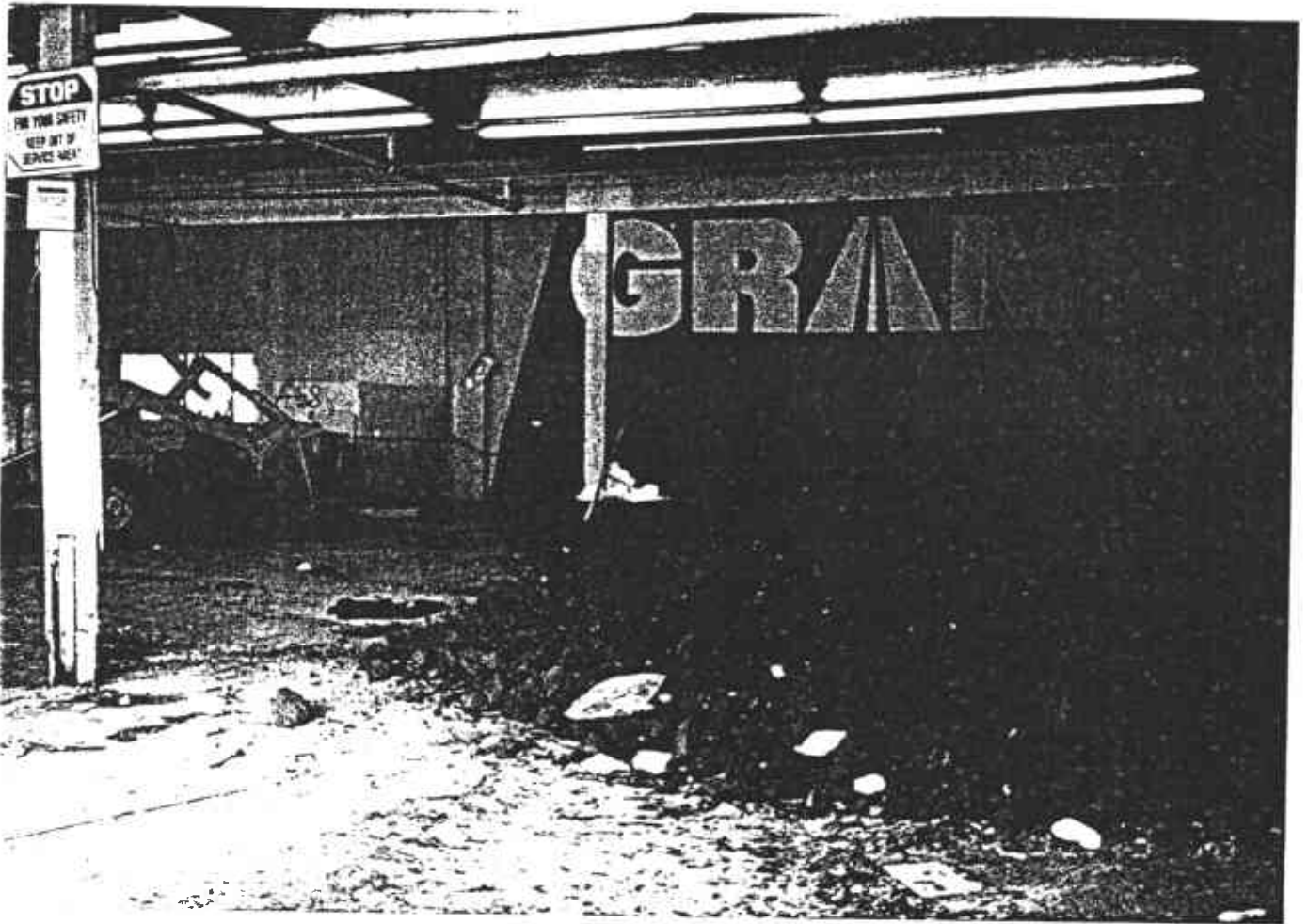
PHOTOGRAPH # 5

View of hoist pit H-5 and reservoir pit T-5 immediately after over-excavation.



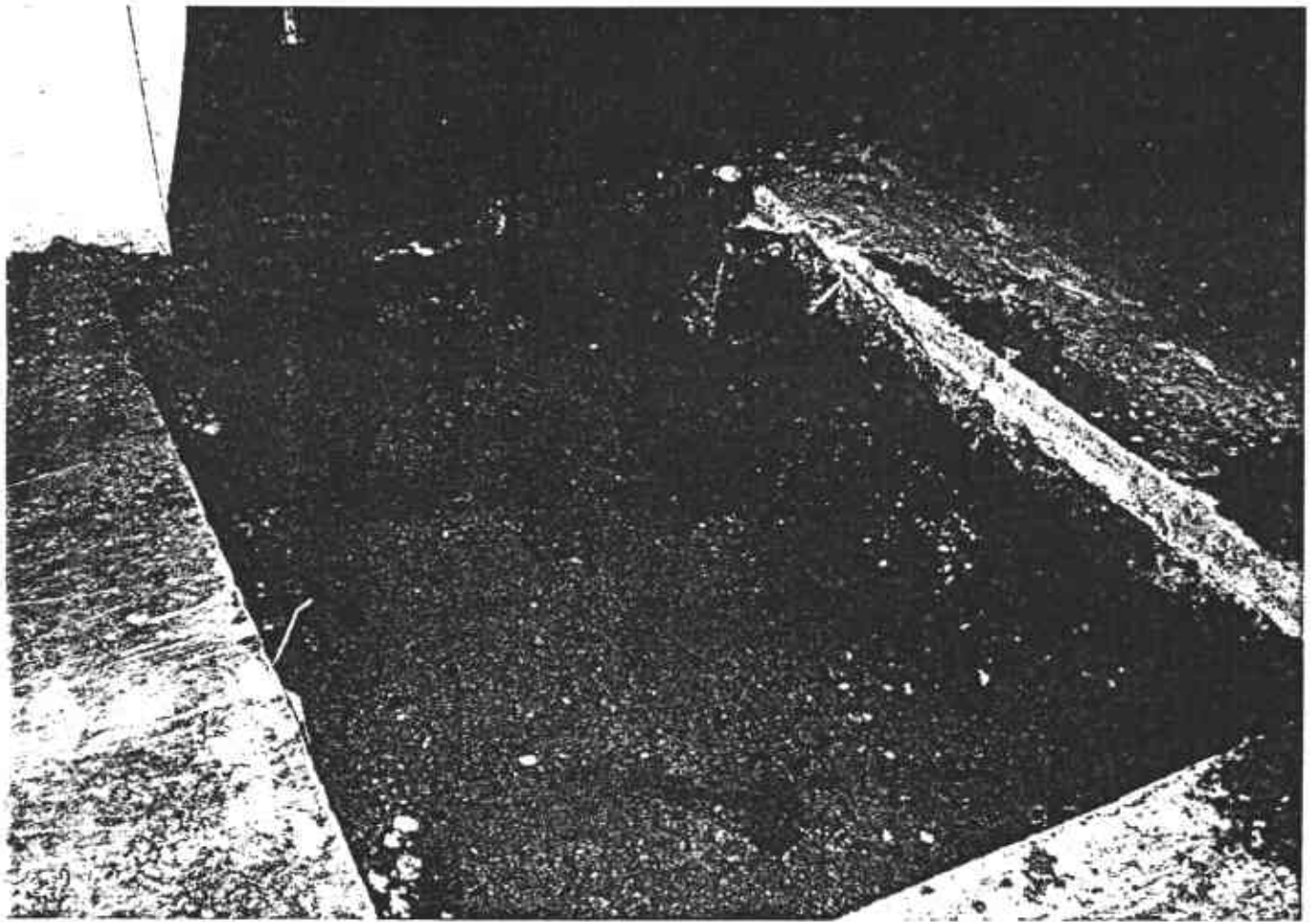
PHOTOGRAPH # 6

View of reservoir pit T-5 after clean-up of excavated soils.



PHOTOGRAPH # 7

View of waste soils from over-excavation temporarily stockpiled inside the building.



PHOTOGRAPH # 8

View of backfilled reservoir pit T-3/T-4.

APPENDIX B



AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

03/23/93

Attention: Long Ching

Reference: Analytical Results

Project Name: GAOK Remediation
Project No.: 92198.25
Date Received: 03/19/93
Chain Of Custody: NO NUMBER

CLS ID No.: M0663
CLS Job No.: 790663

The following analyses were performed on the above referenced project:

No. of Samples	Turnaround Time	Analysis Description
8	2 Days	TPH Diesel by DHS Method - M8015 (soil)

These samples were received by California Laboratory Services in a chilled, intact state and accompanied by a valid chain of custody document.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,


George Hampton
Laboratory Director



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663
Batch No.: 10891
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/19/93
Date Analyzed: 03/19/93
Date Reported: 03/23/93

ANALYTE

Client	Sample I.D. CLS	TPH as Diesel (mg/kg)	TPH as Motor Oil (mg/kg)
	T-5-B	1A ND	ND
	T-1-B	2A ND	ND
	T-2-B	3A ND	ND
	T-5-S	4A ND	ND
	T-1-S	5A ND	ND
	T-2-S	6A ND	ND
	H-5-B	7A ND	ND
	H-5-S	8A ND	ND
	Rep. Limit	10	20

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663
Batch No.: 10891
Matrix: SOIL

Date Extracted: 03/19/93
Date Analyzed: 03/19/93
Date Reported: 03/23/93

METHOD BLANK

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
TPH as Diesel	N/A	ND	10
TPH as Motor Oil	N/A	ND	20

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663
Batch No.: 10891
Matrix: SOIL

Date Extracted: 03/19/93
Date Analyzed: 03/19/93
Date Reported: 03/23/93

MB SPIKE

Analyte	CAS No.	MBS Conc. (mg/kg)	MBS Recovery (percent)
Diesel	N/A	100	79

MB SPIKE DUPLICATE

Analyte	CAS No.	MBSD Conc. (mg/kg)	MBSD Recovery (percent)
Diesel	N/A	100	88

MB SPIKE RPD

Analyte	CAS No.	MBS Relative Percent Difference (percent)
Diesel	N/A	11

CA DOHS ELAP Accreditation/Registration Number 1233



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663
Batch No.: 10891
Matrix: SOIL

Date Reported: 03/23/93

LAB CONTROL STANDARD

Analyte	CAS No.	LCS Conc. (mg/L)	LCS Recovery (percent)
Diesel	N/A	1000	109

CA DOHS ELAP Accreditation/Registration Number 1233



AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

03/26/93

Attention: Long Ching

Reference: Analytical Results

Project Name: GAOK Remediation
Project No.: 92198.25
Date Received: 03/19/93
Chain Of Custody: NO NUMBER

CLS ID No.: M0663A
CLS Job No.: 790663

The following analyses were performed on the above referenced project:

<u>No. of Samples</u>	<u>Turnaround Time</u>	<u>Analysis Description</u>
8	7 Days	PCB's in Soil, Sludge or Other Oil

These samples were received by California Laboratory Services in a chilled, intact state and accompanied by a valid chain of custody document.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,


George Hampton
Laboratory Director



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790683
COC Log No.: NO NUMBER
CLS ID No.: M0663A-1A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-5-B

Sample: T-5-B

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-2A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-1-B

Sample: T-1-B

Table with 4 columns: Analyte, CAS No., Results (mg/kg), Rep. Limit (mg/kg). Rows include Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260.

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-3A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-2-B

Sample: T-2-B

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-4A
Batch No.: 10915
Matrix: SOIL

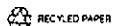
Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-5-S

Sample: T-5-S

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.

CA DOHS ELAP Accreditation/Registration Number 1233





California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790683
COC Log No.: NO NUMBER
CLS ID No.: M0663A-5A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-1-S

Sample: T-1-S

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-6A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: T-2-S

Sample: T-2-S

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-7A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: H-5-B

Sample: H-5-B

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A-8A
Batch No.: 10915
Matrix: SOIL

Date Sampled: 03/18/93
Date Received: 03/19/93
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93
Client ID No.: H-5-S

Sample: H-5-S

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A
Batch No.: 10915
Matrix: SOIL

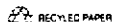
Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93

METHOD BLANK

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
Aroclor 1016	12674-11-2	ND	1.0
Aroclor 1221	1104-28-2	ND	1.0
Aroclor 1232	11141-16-5	ND	1.0
Aroclor 1242	53469-21-9	ND	1.0
Aroclor 1248	12672-29-6	ND	1.0
Aroclor 1254	11097-69-1	ND	1.0
Aroclor 1260	11096-82-5	ND	1.0

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.

CA DOHS ELAP Accreditation/Registration Number 1233





California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton
Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A
Batch No.: 10915
Matrix: SOIL

Date Extracted: 03/24/93
Date Analyzed: 03/24/93
Date Reported: 03/26/93

MB SPIKE

Analyte	CAS No.	MBS Conc. (mg/kg)	MBS Recovery (percent)
Aroclor 1260	11096-82-5	5.0	108

MB SPIKE DUPLICATE

Analyte	CAS No.	MBSD Conc. (mg/kg)	MBSD Recovery (percent)
Aroclor 1260	11096-82-5	5.0	110

MB SPIKE RPD

Analyte	CAS No.	MBS Relative Percent Difference (percent)
Aroclor 1260	11096-82-5	2

CA DOHS ELAP Accreditation/Registration Number 1233





California Laboratory Services

Analysis Report: Polychlorinated Biphenyls, EPA Method 8080

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK Remediation

CLS Contact: George Hampton

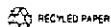
Date Reported: 03/26/93

Job No.: 790663
COC Log No.: NO NUMBER
CLS ID No.: M0663A
Batch No.: 10915
Matrix: SOIL

LAB CONTROL STANDARD

Analyte	CAS No.	LCS Conc. (mg/L)	LCS Recovery (percent)
Aroclor 1260	11096-82-5	0.50	104

CA DOHS ELAP Accreditation/Registration Number 1233



4710663



AllWest

Specialists in Physical Due Diligence and Remedial Services
One Sutter Street, Suite 600
San Francisco, Ca 94104
Tel 415.391.2510
Fax 415.391.2008

Chain of Custody Form

Job Description GAOK REMEDIATION
Job Number 92198.25
Client Contact LONG CHING

Samplers L.C.
Recorder L.C.

Matrix				#Containers	Method Preserved					Sample Number	Sampling Date				SAMPLE NOTES
Water	Soil	Waste	Oil		E2SO4	HNO3	Ice	None	Other		Yr	Mo	Dy	Time	
X	X			1			X			T-5-B	93	03	18	0920	BOTTOM 6.5'
X	X			1			X			T-1-B	93	03	18	0945	BOTTOM 6.5'
X	X			1			X			T-2-B	93	03	18	0955	BOTTOM 6.6'
X	X			1			X			T-5-S	93	03	18	1010	SIDE 6'
X	X			1			X			T-1-S	93	03	18	1030	SIDE 6'
X	X			1			X			T-2-S	93	03	18	1045	SIDE 5.5'
X	X			1			X			H-5-B	93	03	18	1155	BOTTOM 10'
X	X			1			X			H-5-S	93	03	18	1215	SIDE 9'

ANALYSIS REQUESTED											
X	X										
X	X										
X	X										
X	X										
X	X										
X	X										
X	X										
X	X										
X	X										

Laboratory Notes:

TPH-D AND TPH-M 48-HRS TURNAROUND
ANALYZE PCB IF N.D. FOR BOTH TPH-D, TPH-M,
PCB AT ONEWEEK TURNAROUND TIME AFTER
THE RESULTS OF TPH.

Chain of Custody Record	
Relinquished by: (signature) Date/Hr <i>[Signature]</i> 3/19/93 8:20	Received by (signature) <i>[Signature]</i>
Relinquished by: (signature) Date/Hr <i>[Signature]</i> 3:00	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Dispatched by: (signature) Date/Hr	Received for Lab by (signature) <i>[Signature]</i> 10/10



AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

04/19/93

Attention: Long Ching

Reference: Analytical Results

Project Name: GAOK REMEDIATION
Project No.: 92198.25
Date Received: 04/12/93
Chain Of Custody: NO NUMBER

CLS ID No.: M0863
CLS Job No.: 790863

The following analyses were performed on the above referenced project:

<u>No. of Samples</u>	<u>Turnaround Time</u>	<u>Analysis Description</u>
2	7 Days	TPH Diesel by DHS Method - M8015 (soil)

These samples were received by California Laboratory Services in a chilled, intact state and accompanied by a valid chain of custody document.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



George Hampton
Laboratory Director



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK REMEDIATION

CLS Contact: George Hampton
Job No.: 790863
COC Log No.: NO NUMBER
CLS ID No.: M0863
Batch No.: 11024
Matrix: SOIL

Date Sampled: 04/09/93
Date Received: 04/12/93
Date Extracted: 04/12/93
Date Analyzed: 04/12/93
Date Reported: 04/19/93

ANALYTE

Client	Sample I.D. CLS	TPH as Diesel (mg/kg)	TPH as Motor Oil (mg/kg)
T-3/4-12	1A	ND(2000)	19000
T-3/4-13	2A	ND(2000)	22000
Rep. Limit		10	20

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK REMEDIATION

CLS Contact: George Hampton
Job No.: 790863
COC Log No.: NO NUMBER
CLS ID No.: M0863
Batch No.: 11024
Matrix: SOIL

Date Extracted: 04/12/93
Date Analyzed: 04/12/93
Date Reported: 04/19/93

METHOD BLANK

Analyte	CAS No.	Results (mg/kg)	Rep. Limit (mg/kg)
TPH as Diesel	N/A	ND	10
TPH as Motor Oil	N/A	ND	20

ND = Not detected at or above indicated Reporting Limit
Rep. Limit = Reporting Limit unless otherwise indicated in parentheses.



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK REMEDIATION

CLS Contact: George Hampton
Job No.: 790863
COC Log No.: NO NUMBER
CLS ID No.: M0863
Batch No.: 11024
Matrix: SOIL

Date Extracted: 04/12/93
Date Analyzed: 04/12/93
Date Reported: 04/19/93

MB SPIKE

Analyte	CAS No.	MBS Conc. (mg/kg)	MBS Recovery (percent)
Diesel	N/A	100	73

MB SPIKE DUPLICATE

Analyte	CAS No.	MBSD Conc. (mg/kg)	MBSD Recovery (percent)
Diesel	N/A	100	75

MB SPIKE RPD

Analyte	CAS No.	MBS Relative Percent Difference (percent)
Diesel	N/A	3



California Laboratory Services

Analysis Report: Total Petroleum Hydrocarbons, EPA Method 8015
Shaker, DOHS LUFT Method

Client: AllWest Environmental
One Sutter Street Ste 600
San Francisco, CA 94104

Project No.: 92198.25
Contact: Long Ching
Phone: (415)391-2510

Project: GAOK REMEDIATION

CLS Contact: George Hampton
Job No.: 790863

Date Reported: 04/19/93

COC Log No.: NO NUMBER
CLS ID No.: M0863
Batch No.: 11024
Matrix: SOIL

LAB CONTROL STANDARD

Analyte	CAS No.	LCS Conc. (mg/L)	LCS Recovery (percent)
Diesel	N/A	1000	90

CA DOHS ELAP Accreditation/Registration Number 1233



AllWest

Specialists in Physical Due Diligence and Remedial Services

One Sutter Street, Suite 600
San Francisco, Ca 94104
Tel 415.391.2510
Fax 415.391.2008

140813
Chain of Custody Form

Job Description GAOK REMEDIATION
Job Number 92198.25
Client Contact LONG CHING

Samplers L. CHING
Recorder L. CHING

ANALYSIS REQUESTED											
XX TPH - DIESEL & MOTOR OIL											

Matrix				Method Preserved	Sample Number	Sampling Date				SAMPLE NOTES						
Water	Soil	Waste	Oil			#Containers	H ₂ SO ₄	HNO ₃	Ice		None	Other	Yr	Mo	Dy	Time
X					T-3/4-12	93	04	09	10	10				BOTTOM 12'		
X				1	T-3/4-13	93	04	09	10	35				BOTTOM 13'		

Laboratory Notes:
5-DAY TURNAROUND TIME.

Chain of Custody Record	
Relinquished by: (signature) Date/Hr <u>longly 4/12/93 13:30</u>	Received by: (signature) <u>Kevin O'Rougher 4/12/93</u>
Relinquished by: (signature) Date/Hr	Received by: (signature)
Relinquished by: (signature) Date/Hr	Received by: (signature)
Relinquished by: (signature) Date/Hr	Received by: (signature)
Dispatched by: (signature) Date/Hr	Received for Lab by (signature) <u>Kevin O'Rougher 4/12/93</u>

↑ amt of con. they leave
↓ TOLP

