



ecology and environment, inc.

160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811

International Specialists in the Environment

July 16, 1990

Mr. John Moe
Southern Pacific Transportation Company
One Market Plaza
San Francisco, California 94105

Dear John:

Re: Summary of Post-Excavation Sampling Results of the SPTCo. High Street Site, Oakland, California

This letter summarizes the soil excavation activities at Southern Pacific Transportation Company's (SPTCo.'s) property at 744 High Street in Oakland, California. Soil excavation occurred on two days, Monday, April 30 and Tuesday, May 8, 1990. Soil was excavated by IT Corporation under contract to SPTCo. Oversight and post-excavation sampling was provided by Ecology and Environment, Inc. (E & E).

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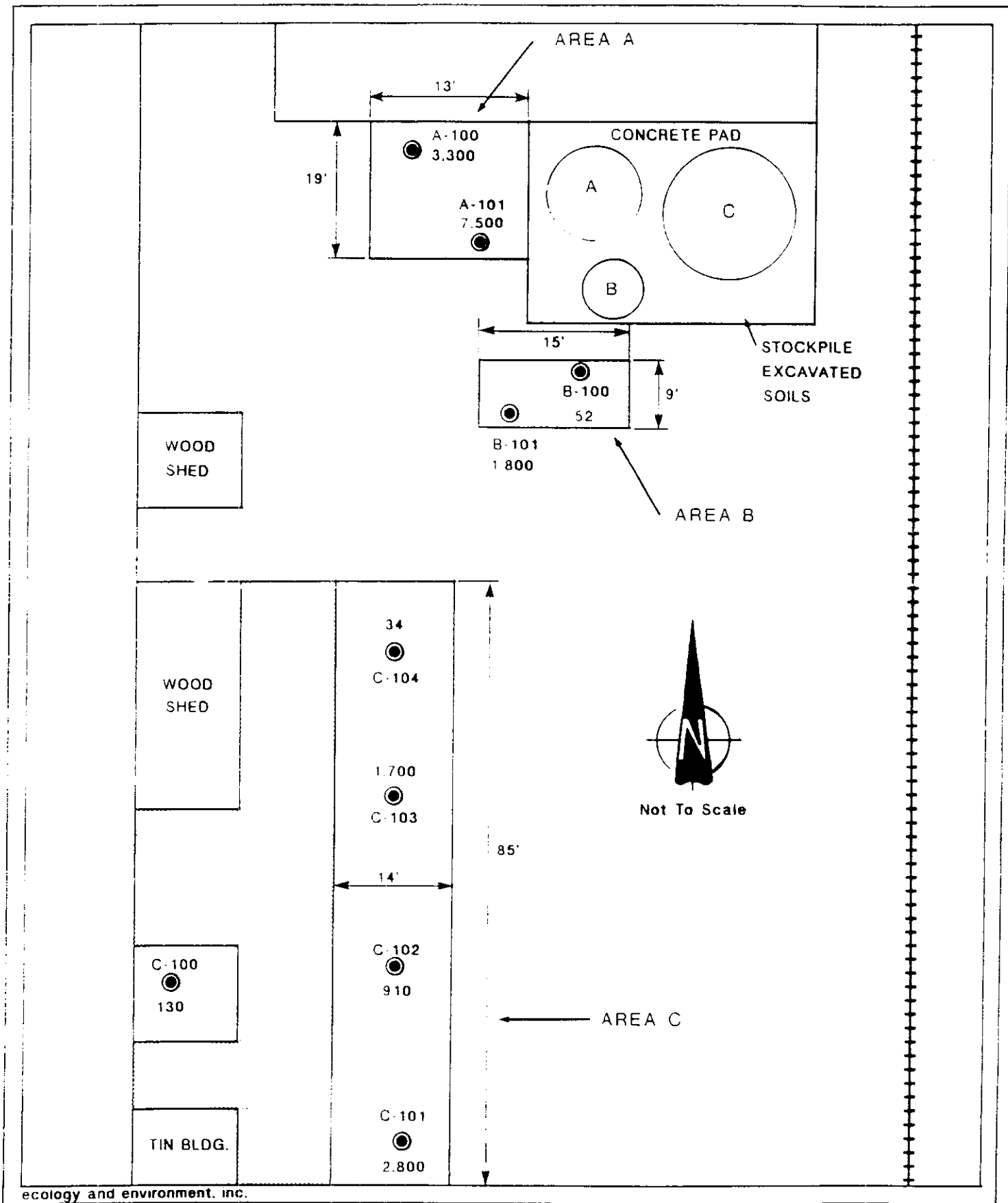


Figure 1 SAMPLING LOCATION MAP
 TOTAL PETROLEUM HYDROCARBON (mg/kg, ppm)

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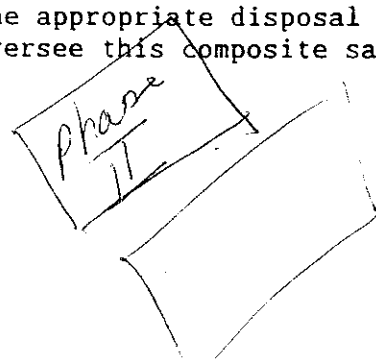
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A second phase of excavation was scheduled for May 8, 1990. The objective was to excavate soil to the gray clay that occurred at about 2 feet in area B. During the second phase of excavation, the gray clay was encountered in area A at about 2 feet and in area C at about 2.5 feet. In area C, the hard, slaggy material was entirely removed. During removal, several whole bottles were observed embedded in the slag, suggesting that the slag may have been poured onto the surface while molten and into which workers tossed occasional bottles. Volumes removed during the second phase of excavation were: 14.1 cubic yards from area A, 6.4 cubic yards from area B, and 66.1 cubic yards from area C. The total volume removed during both phases of excavation was: 27.8 cubic yards from area A, 13.9 cubic yards from area B, and 110.2 cubic yards from area C. The total volume excavated from the three areas was 151.9 cubic yards.

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Soil excavated during Phase II was stockpiled in the same area as the soil excavated during Phase I. Because the Phase I sample results indicated PCBs were not a concern, soil excavated from the different areas was not segregated. The stockpile was covered with a plastic sheet. IT Corporation subsequently collected a composite sample from the stockpile for profiling so that the appropriate disposal alternative could be determined. E & E did not oversee this composite sampling.



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Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Chris Nichols for

Robert H. Enkeboll

Enclosure: Lab Report

Table 1

INITIAL EXCAVATION SAMPLE RESULTS

Sample Number	TPH ¹ (mg/kg)	Aroclor ² 1221 (ug/kg)	Aroclor ² 1232 (ug/kg)	Aroclor ² 1016 (ug/kg)	Aroclor ² 1242 (ug/kg)	Aroclor ² 1248 (ug/kg)	Aroclor ² 1254 (ug/kg)	Aroclor ² 1260 (ug/kg)	Aroclor ² 1262 (ug/kg)
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A-101	7500	--	--	--	--	--	--	--	--
B-100	52	--	--	--	--	--	--	--	--
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C-100	130	<22	<22	<22	520	<22	<22	69	<22
C-101	2800	<220	<220	<220	<220	<220	2500	<220	<220
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1 = EPA Method 418.1
Extraction Method = EPA 3550

2 = EPA Method 8080
Extraction Method = EPA 3550

mbe/tl

Table 2

SECOND PHASE EXCAVATION SAMPLE RESULTS

Sample Number	TPH ¹ (mg/kg)
A-200	18
A-201	13
B-200	<10
B-201	<10
C-200	13
C-201	<10
C-202	20
C-203	<10

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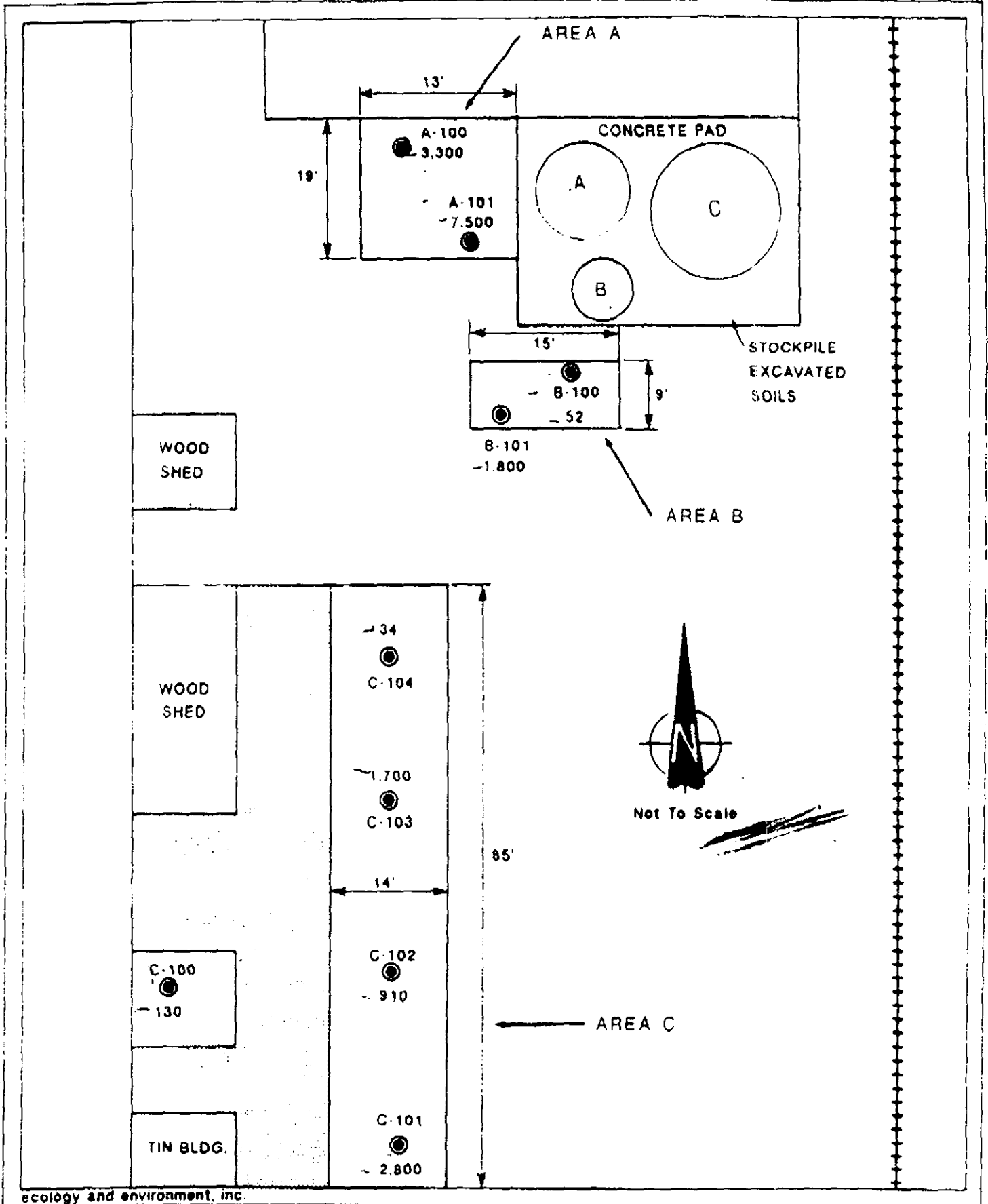
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July 16, 1990

Mr. John Moe
Southern Pacific Transportation Company
One Market Plaza
San Francisco, California 94105

JK

Dear John:

Re: Summary of Groundwater Sampling Results at the SPTCo. High Street Site, Oakland, California

This letter presents the results of groundwater sampling conducted by Ecology and Environment, Inc., (E & E) on June 25, 1990, at Southern Pacific Transportation Company's (SPTCo.'s) property at 774 High Street in Oakland, California. Groundwater samples were obtained from six groundwater monitoring wells and a total of eight water samples, including one sample duplicate and one field blank, were analyzed for PCBs according to EPA Method 608 by Curtis & Tompkins, Ltd., an analytical laboratory in Berkeley. Sample locations are shown in Figure 3-2, from the copied Phase II environmental assessment report (E & E, January 26, 1990). To briefly summarize the sampling results, no PCBs were detected in any of the samples. The remainder of this letter discusses in greater detail the field activities and the significance of the results.

Groundwater sampling consisted of initially measuring the depth to water in each well, evacuating between three and five wetted well casing volumes, and then collecting the groundwater samples. Monitoring well A-1 initially could not be located and monitoring well B-2 could not be opened, so the water levels in these two wells were measured approximately 5 hours after the water levels in the other four monitoring wells were measured. The effect of tidal fluctuations on the water levels at the property is unknown; however, it is unlikely that it is greater than several tenths of feet. Groundwater level elevations measured on June 25, 1990, are presented in Table 1. The highest water levels were measured in wells A-1 and B-2 and the lowest were measured in wells C-2 and C-6. If the water levels in wells A-1 and B-2 are adjusted either up or down by as much as a foot, the overall flow direction and gradient at the site are not significantly affected. Therefore, it appears that the time lapse in measuring water levels has not greatly influenced the overall flow direction or gradient. The groundwater level elevations reveal a low area extending through the

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property in a roughly east-west direction, which includes wells C-2 and C-6. North of these wells flow is to the south-southeast with an apparent gradient of approximately 0.02 feet per foot. South of wells C-2 and C-6, the flow direction appears to be to the north-northeast. The water level in well C-6 was measured as being several hundredths of a foot higher than the water level in well C-2, indicating that flow is toward well C-2. In previous measurements of water levels at the property, water levels in wells C-2 and C-6 were the lowest; however, the water level in C-6 in the past has been the lowest, indicating that flow was from C-2 to C-6 or to the west.

Groundwater level elevations were observed to rise in all of the wells between December 4, 1989, and June 25, 1990 (Table 2); however, the magnitude of the rise was not the same in all wells. The greatest water level rise measured was 6.64 feet in well C-6 and the lowest was 0.66 feet in well A-1. These rises are probably related to seasonal recharge related to infiltration of rainfall. It should be noted that some of the heaviest rain during the 1989-1990 rainy season occurred very late, toward the end of May.

During evacuation of groundwater prior to sampling, the water quality parameters of temperature, electrical conductivity, and pH were measured at approximately 2.5-gallon intervals. Water quality measurements are presented in Table 3. During excavation, wells C-2 and C-6 bailed dry. Well C-2 bailed dry after 10 gallons were evacuated and well C-6 bailed dry after 7 gallons were evacuated. The temperature of groundwater was fairly constant at approximately 18°C and the pH typically was 6. Conductivities ranged from approximately 500 to 1,200 umhos/cm. The lowest conductivities were measured in well B-2 (approximately 500 umhos/cm) and the highest were measured in well C-6 (approximately 1,200 umhos/cm) and in well A-5 (approximately 1,150 umhos/cm). The conductivities in the other three wells typically were between 800 and 950 umhos/cm.

PCB results detected at the High Street property over the period of sampling are presented in Table 4. On June 25, 1990, PCBs were not detected in any of the monitoring wells. Over the period of sampling (May 26, 1989, to June 25, 1990), PCBs have only been detected in one well (C-2) and only on May 26 and July 28, 1989. The levels detected have been at 1 ppb or less. Leaching of contaminants would be expected to be greatest during periods of infiltration and recharge; yet, on December 4, 1989, and June 25, 1990, when water levels were observed to be rising, no PCBs were detected. Groundwater sampling subsequent to the detection of PCBs indicates that the occurrence appears to have been very isolated in both time and space.

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The next groundwater sampling event is scheduled for late August 1990, unless we are directed otherwise by you. If you have any questions, feel free to call either Colin Moy or me at 415/777-2811.

Sincerely,

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Chris Lichten for

Robert H. Enkeboll

Enclosure: Lab Report

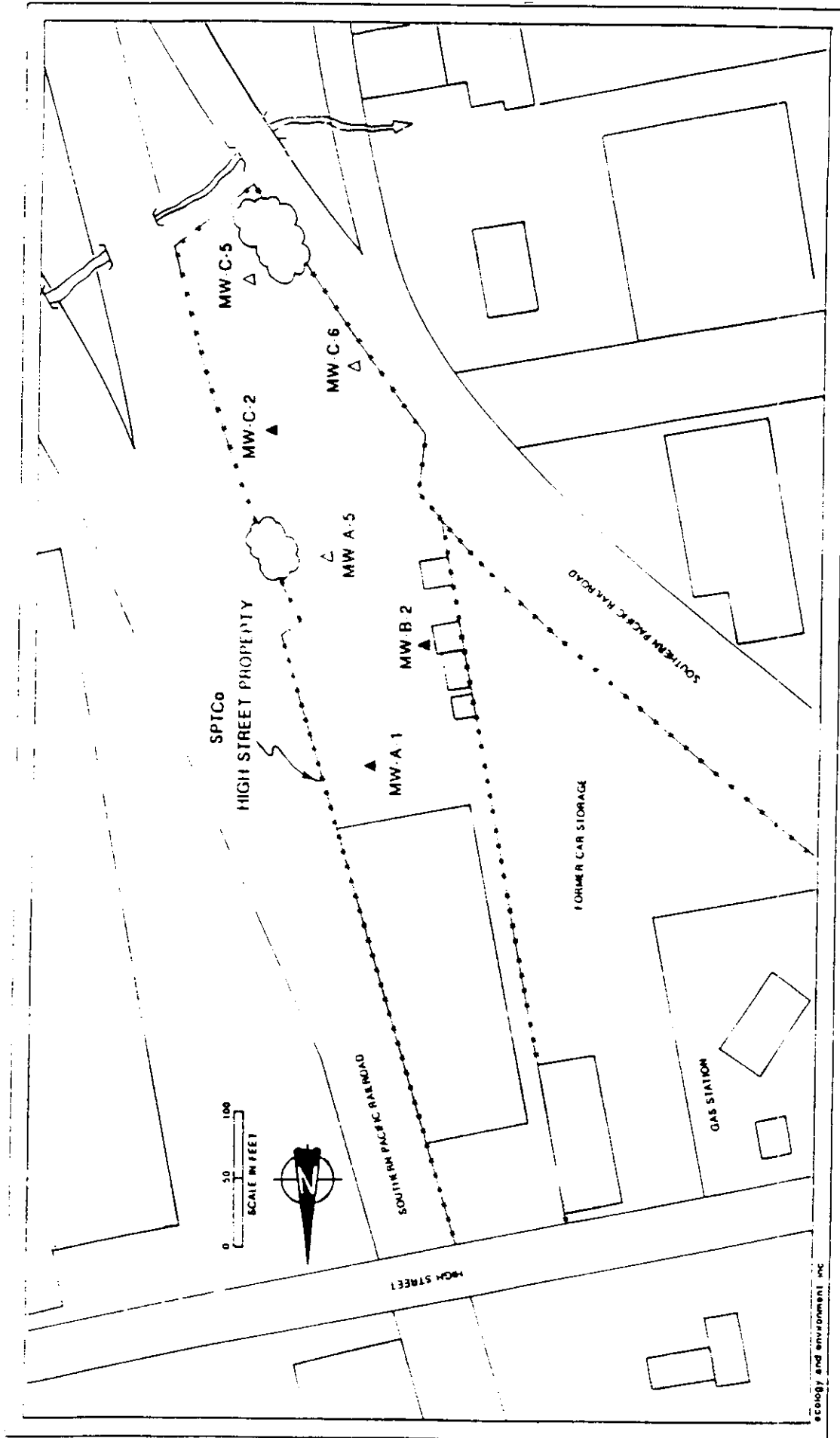


Figure 3-2 SPTCo. HIGH STRE 2.1
 PHASE II GROUNDWATER SAMPLING LOCATIONS

- ▲ PHASE I MONITORING WELL
- △ PHASE II MONITORING WELL

Table 1

GROUNDWATER LEVEL ELEVATIONS
(in feet)

June 25, 1990

Monitoring Well	Time	Depth to Water (bmp)*	Datum Stickup	Depth to Water (bgs)**	Ground Surface Elevation	Ground Water Elevation
A-1	1415	6.53	0.31	6.84	15.57	8.73
A-5	0900	8.24	0.60	8.84	14.94	6.10
B-2	1330	5.97	0.36	6.33	14.37	8.04
C-2	0840	11.04	0.52	11.56	15.30	3.74
C-5	0850	8.67	0.18	8.85	13.78	4.93
C-6	0916	9.76	0.25	10.01	14.01	4.00

* bmp = below measuring point

** bgs = below ground surface

Table 2

SUMMARY OF GROUNDWATER LEVEL ELEVATIONS
(in feet)

Monitoring Well	May 26, 1989	July 28, 1989	November 22, 1989	December 4, 1989	June 25, 1989
A-1	8.47	7.27	7.39	8.07	8.73
A-5	-	-	-	3.05	6.10
B-2	8.00	6.36	6.23	7.15	8.04
C-2	4.06	0.58	-0.28	1.80	3.74
C-5	-	-	-	3.47	4.93
C-6	-	-	-	-2.24	4.00

Table 3

WATER QUALITY PARAMETERS MEASURED DURING SAMPLING

June 25, 1990

Monitoring Well	Gallons Evacuated	Temperature (°C)	Electrical Conductivity (umhos/cm)	pH	Notes
A-1	0	17.5	800	6	
	2.5	17.5	875	6	
	6.0	18.0	775	6	
	7.5	18.0	750	6	
	10.0	18.0	800	6	
A-5	2.5	18.0	1150	-	
	5.0	18.0	1200	6	
	7.5	18.0	1150	6.5	
	10.0	18.0	1150	6.5	
B-2	0	20	450	6	
	3	18.0	500	6	
	5	18.5	520	6	
	8	18.0	520	6	
	10	17.0	550	6	
C-2	0	17.5	850	7	
	2.5	19.0	900	7	
	5.0	19.0	800	7	
	7.5	19.0	920	6	
	10.0	18.5	900	6	well bailed dry
C-5	0	18.0	950	6	
	2.5	17.0	950	6	
	5.0	17.0	950	6	
	8.0	16.5	980	6	
	10.0	17.0	950	6	
C-6	0	18.0	1150	6	
	3	18.0	1250	6	
	5	18.5	1300	6	
	7	-	-	-	well bailed dry

Table 4

SUMMARY OF GROUNDWATER PCB RESULTS
(ppb, ug/l)

Monitoring Well	May 26, 1989	July 28, 1989	December 4, 1989	June 25, 1990
A-1	ND	-	ND	ND
A-1*	ND	-		
A-5	-	-	ND	ND
B-2	ND	-	ND	ND
C-2	1.0	0.61	ND	ND
C-2*	-	0.78	ND	ND
C-5	-	-	ND	ND
C-5*	-	-	-	ND
C-6	-	-	ND	ND
Field Blank	ND	-	ND	ND

* - Field Duplicate



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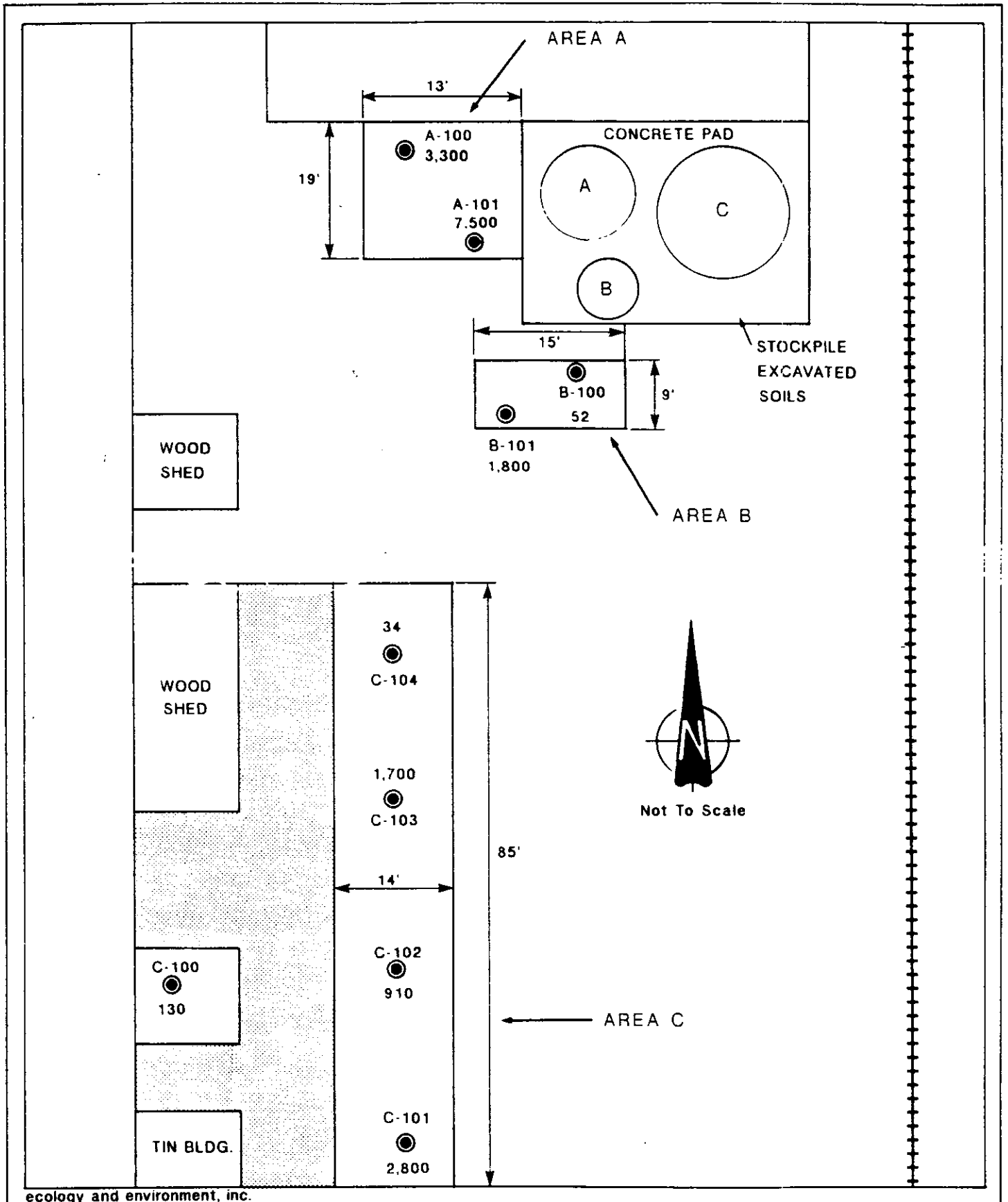


Figure 1 SAMPLING LOCATION MAP
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SECOND PHASE EXCAVATION SAMPLE RESULTS

Sample Number	TPH ¹ (mg/kg)
A-200	18
A-201	13
B-200	<10
B-201	<10
C-200	13
C-201	<10
C-202	20
C-203	<10

1 - EPA Method 418.1
 Extraction Method = EPA 3550



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/01/90
DATE REPORTED: 05/02/90
PAGE 1 OF 7

LAB NUMBER: 100325

CLIENT: ECOLOGY & ENVIRONMENT, INC.

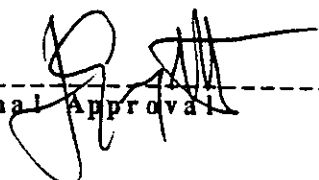
REPORT ON: 9 SOIL SAMPLES

PROJECT #: SP-9000
LOCATION: SP-HIGH STREET

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

Berkeley

Wilmington

Los Angeles

SF 066311

LABORATORY NUMBER: 100325
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 JOB #: SP-9000
 LOCATION: SP-HIGH STREET

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 2 OF 7

EPA 418.1: Total Petroleum Hydrocarbons by IR in Soils & Wastes
 Extraction Method: EPA 3550

LAB ID	CLIENT ID	RESULT (mg/Kg)
100325-1	A-100	3,300
100325-2	A-101	7,500
100325-3	B-100	52
100325-4	B-101	1,800
100325-5	C-100	130
100325-6	C-101	2,800
100325-7	C-102	910
100325-8	C-103	1,700
100325-9	C-104	34

QA/QC SUMMARY

RPD, %	3
RECOVERY, %	101

LAB NUMBER: 100325-5
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-100

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 3 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	22
AROCLOR 1232	ND	22
AROCLOR 1016	ND	22
AROCLOR 1242	520	22
AROCLOR 1248	ND	22
AROCLOR 1254	ND	22
AROCLOR 1260	69	22
AROCLOR 1262	ND	22

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

SF 066313

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY

DAVID J. KEARS, Agency Director



RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

October 5, 1992
STID # 4240

Ms. Deborah David
Law Offices of Lebovits and David
Two Century Plaza
2049 Century Pard East, Suite 3100
Los Angeles, CA 90067

SECOND NOTICE OF VIOLATION

Re: Request for Work Plan for Subsurface Investigation at 106
and 110 Hegenberger Rd., Oakland CA 94621

Dear Ms. David:

Thank you for the submission of the various analytical results and weight tag receipts for the disposal of contaminated soils generated from tank removals and sump investigation performed at these sites. In the event that my September 4, 1992 was not clear, this letter serves as a second notice. Our office was at that time and again requests a work plan for further subsurface investigation. The work plan should also include a time schedule for the implementation of the recommended activities. I am including a copy of **Appendix A, Workplan for Initial Subsurface Investigation**, a document used by the Regional Water Quality Control Board (RWQCB) to serve as a guide to describe the common contents of a preliminary site investigation. Particular attention should be given to insure that the County's concerns, as outlined on Page 2 of my September 4th letter, are addressed.

Please submit the requested work plan to our office within **45 days** of receipt of this letter. Again you are reminded that failure to submit the requested document may subject you to civil liabilities and the referral of this case to the RWQCB or the District Attorney's Office for enforcement.

You may contact me at (510) 271-4350 if you have any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist
enclosure (Ms. David only)

cc: M. Thomson, Alameda County District Attorney Office
R. Hiatt, RWQCB
E. Howell III, files
2NOV-106/110

LAB NUMBER: 100325-6
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-101

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 4 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	2,500	220
AROCLOR 1260	ND	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

LAB NUMBER: 100325-7
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-102

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 5 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	1,500	220
AROCLOR 1260	ND	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

LAB NUMBER: 100325-8
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-103

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 6 OF 7

=====

POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550

=====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	ND	220
AROCLOR 1260	1,600	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

RPD, %	<1
RECOVERY, %	82

=====

SF 066316

LAB NUMBER: 100325-9
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-104

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 7 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	22
AROCLOR 1232	ND	22
AROCLOR 1016	ND	22
AROCLOR 1242	ND	22
AROCLOR 1248	ND	22
AROCLOR 1254	ND	22
AROCLOR 1260	ND	22
AROCLOR 1262	ND	22

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/08/90

DATE REPORTED: 05/10/90

PAGE 1 OF 2

LAB NUMBER: 100418

CLIENT: ECOLOGY & ENVIRONMENT

REPORT ON: 8 SOIL SAMPLES

PROJECT #: SP-8070

LOCATION: SP HIGH STREET

RESULTS: SEE ATTACHED

Alan

QA/QC Approval

[Signature]

Final Approval

LABORATORY NUMBER: 100418
 CLIENT: ECOLOGY & ENVIRONMENT
 JOB #: SP-8070
 LOCATION: SP HIGH STREET

DATE RECEIVED: 05/08/90
 DATE ANALYZED: 05/09/90
 DATE REPORTED: 05/10/90
 PAGE 2 OF 2

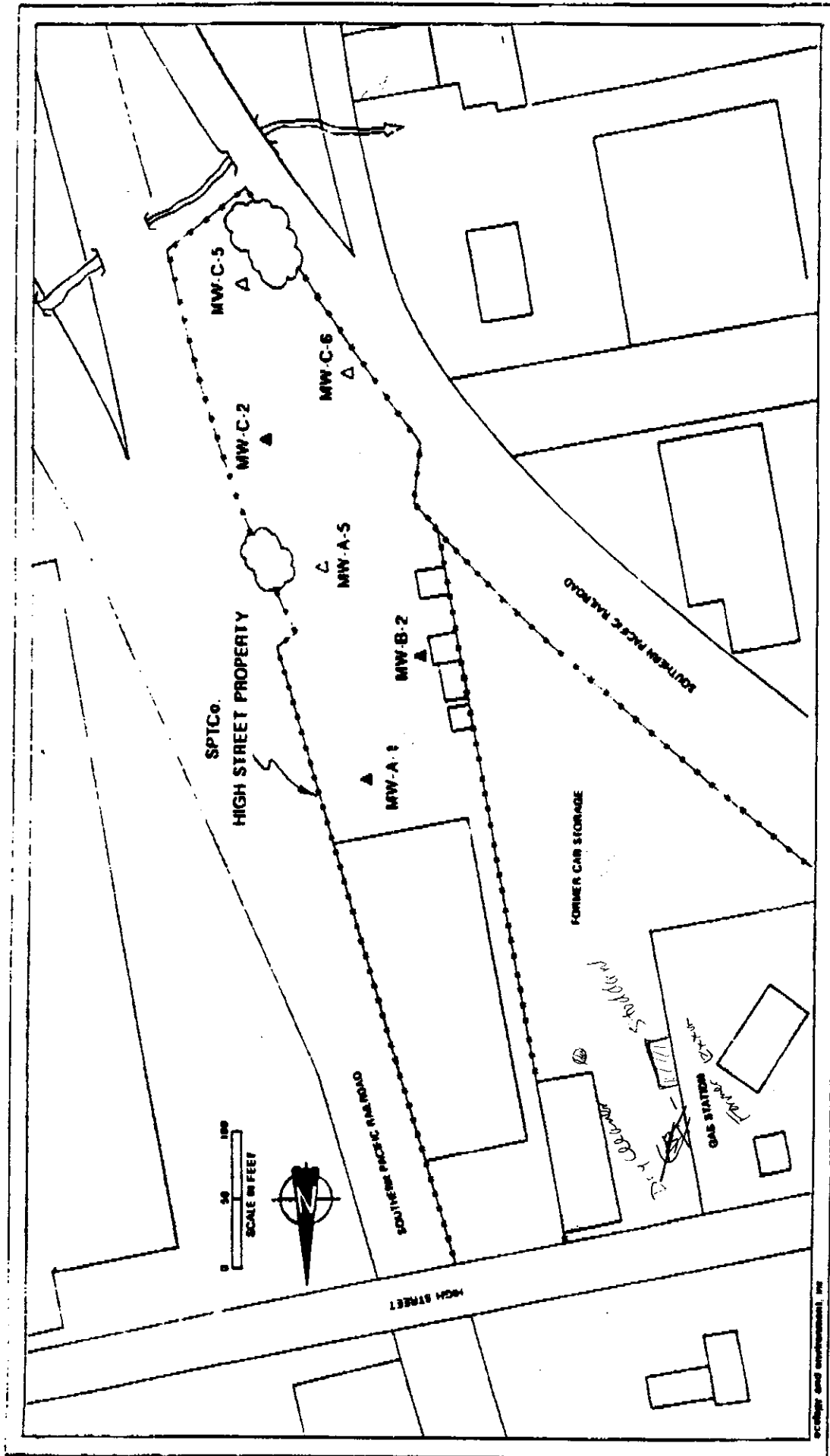
EPA 418.1: Total Petroleum Hydrocarbons by IR in Soils & Wastes
 Extraction Method: EPA 3550

LAB ID	CLIENT ID	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)
100418-1	A-200	18	10
100418-2	A-201	13	10
100418-3	B-200	ND	10
100418-4	B-201	ND	10
100418-5	C-200	13	10
100418-6	C-201	ND	10
100418-7	C-202	20	10
100418-8	C-203	ND	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	101



- ▲ PHASE I MONITORING WELL
- △ PHASE II MONITORING WELL

Figure 3-2 SPTCo. HIGH STREET
PHASE II GROUNDWATER SAMPLING LOCATIONS

Table 1
GROUNDWATER LEVEL ELEVATIONS
September 6, 1990

Monitoring Well	Time	Depth to Water ₁ (bmp) ¹	Datum Adjustment	Depth to Water ₂ (bgs) ²	Ground Surface Elevation (msl) ³	Groundwater Elevation (msl) ³
A-1	0855	8.14	0.31	8.45	15.57	7.12
A-5	0857	10.74	0.60	11.34	14.94	3.60
B-2	0852	7.92	0.36	8.28	14.37	6.09
C-2	0912	14.03	0.52	14.55	15.30	0.75
C-5	0915	11.58	0.18	11.76	13.78	2.02
C-6	0843	11.25	0.25	11.50	14.01	2.51

1. bmp = below measuring point
2. bgs = below ground surface
3. msl = mean sea level

Table 4
SUMMARY OF GROUNDWATER PCB RESULTS
(ppb, ug/l)

Monitoring Well	May 26, 1989	July 28, 1989	December 4, 1990	June 25, 1990	September 6, 1990
A-1	ND	--	ND	ND	ND
A-1*	ND	--	--	--	--
A-5	--	--	ND	ND	ND
u-2	ND	--	ND	ND	ND
B-2*	--	--	--	--	ND
C-1	1.0	0.61	ND	ND	ND
C-2*	--	0.78	ND	--	--
C-5	--	--	ND	ND	ND
C-5*	--	--	--	ND	--
C-6	--	--	ND	ND	0.59
Field Blank	ND	--	ND	ND	ND

* -- Duplicate Sample

mbe/sp/t2 & t4



ecology and environment, inc.

160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811

90 NOV 27 AM 11:02

International Specialists in the Environment

July 16, 1990

Mr. John Moe
Southern Pacific Transportation Company
One Market Plaza
San Francisco, California 94105

*no map of second round of
sampling
no chain of custody
no discussion of final disposition
of excavated soil.*

Dear John:

Re: Summary of Post-Excavation Sampling Results of the SPTCo. High Street Site, Oakland, California

This letter summarizes the soil excavation activities at Southern Pacific Transportation Company's (SPTCo.'s) property at 744 High Street in Oakland, California. Soil excavation occurred on two days, Monday, April 30 and Tuesday, May 8, 1990. Soil was excavated by IT Corporation under contract to SPTCo. Oversight and post-excavation sampling was provided by Ecology and Environment, Inc. (E & E).

Based on results of previous soil sampling conducted by E & E, three areas were identified as requiring remediation based on the presence of soil visibly stained with petroleum or on sample results indicating that PCBs above 50 ppm may be present. The remediation cleanup level for petroleum stained soil was 1,000 ppm total petroleum hydrocarbons. The three areas requiring excavation are shown on Figure 1. During the initial excavation on April 30, 1990, soil was excavated from the three areas to depths between 1 and 1.5 feet. A total of 13.7 cubic yards were excavated from area A; 7.5 cubic yards were excavated from area B, and 44.1 cubic yards were excavated from area C. In area B, surface soils were underlain at about 2 feet by dark gray clay. Area C was underlain at about 1 to 1.5 feet by a very hard, glossy, black, vesicular slag material. The deepest excavation in area A was about 1.5 feet and the material encountered was a brown soil. The objective of the excavation was to remove all soil from the three areas that were visibly stained with oil. Excavated soil was stockpiled on a concrete pad near monitoring well A-1 (see Figure 1). The excavated soil was placed directly on the concrete slab. Soil excavated from each area was stockpiled separately so that each pile could be handled separately, if necessary. Stockpiled soil was covered with plastic.

Following the excavation, E & E collected nine soil samples from the base of the excavations at locations shown in Figure 1. Two samples were collected from areas A and B and five were collected from area C. Soil samples from areas A and B were analyzed for TPHs; samples from

mbe/moe/l2

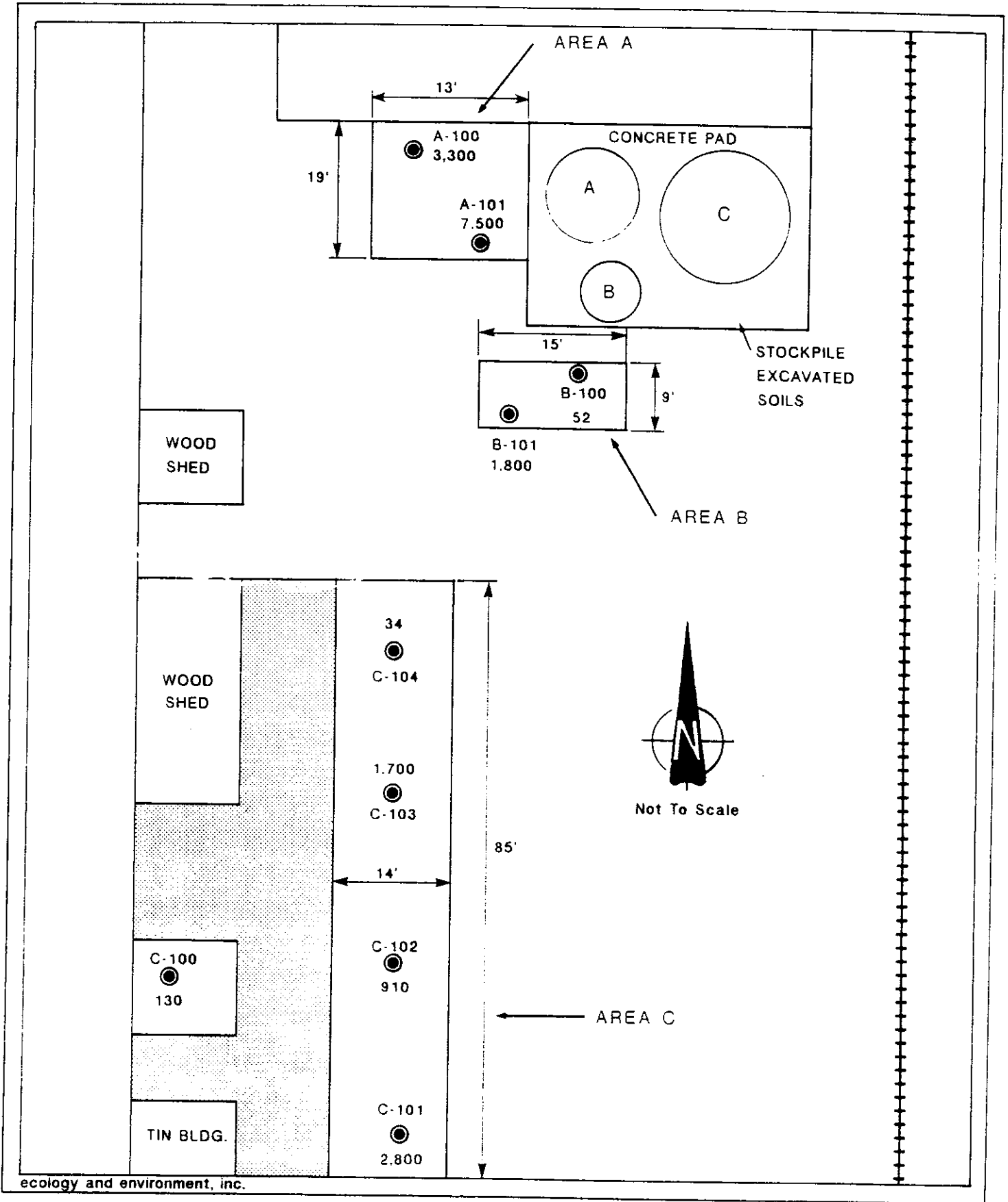


Figure 1 SAMPLING LOCATION MAP
 TOTAL PETROLEUM HYDROCARBON (mg/kg, ppm)

Mr. John Moe
July 16, 1990
Page Two

area C were analyzed for TPHs and PCBs. Analyses were performed by Curtis & Tompkins Laboratory in Berkeley, California, on a 24-hour turnaround of results for PCBs and a 48-hour turnaround for TPHs. Results are presented in Table 1.

The results indicated that the initial excavation had been adequate for PCBs, but TPHs exceeding the 1,000 ppm action level occurred in all three excavation areas. TPHs above 1,000 ppm were detected even though all visibly oil-stained soil had been removed.

A second phase of excavation was scheduled for May 8, 1990. The objective was to excavate soil to the gray clay that occurred at about 2 feet in area B. During the second phase of excavation, the gray clay was encountered in area A at about 2 feet and in area C at about 2.5 feet. In area C, the hard, slaggy material was entirely removed. During removal, several whole bottles were observed embedded in the slag, suggesting that the slag may have been poured onto the surface while molten and into which workers tossed occasional bottles. Volumes removed during the second phase of excavation were: 14.1 cubic yards from area A, 6.4 cubic yards from area B, and 66.1 cubic yards from area C. The total volume removed during both phases of excavation was: 27.8 cubic yards from area A, 13.9 cubic yards from area B, and 110.2 cubic yards from area C. The total volume excavated from the three areas was 151.9 cubic yards.

Following the second phase of excavation, eight soil samples were collected from the base of the excavation, with two samples collected from area A, two samples from area B, and four samples from area C. Samples were analyzed for TPHs by Curtis & Tompkins laboratory with a turnaround time of 48 hours. Results are presented in Table 2. The results reveal that the second phase of excavation was effective in removing all soil with TPHs over 1,000 ppm.

Soil excavated during Phase II was stockpiled in the same area as the soil excavated during Phase I. Because the Phase I sample results indicated PCBs were not a concern, soil excavated from the different areas was not segregated. The stockpile was covered with a plastic sheet. IT Corporation subsequently collected a composite sample from the stockpile for profiling so that the appropriate disposal alternative could be determined. E & E did not oversee this composite sampling.

Mr. John Moe
July 16, 1990
Page Three

If you have any questions concerning the excavation activities, please do not hesitate to call.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Chris Peters for

Robert H. Enkeboll

Enclosure: Lab Report

Table 1
INITIAL EXCAVATION SAMPLE RESULTS

Sample Number	TPH ¹ (mg/kg)	Aroclor ² 1221 (ug/kg)	Aroclor ² 1232 (ug/kg)	Aroclor ² 1016 (ug/kg)	Aroclor ² 1242 (ug/kg)	Aroclor ² 1248 (ug/kg)	Aroclor ² 1254 (ug/kg)	Aroclor ² 1260 (ug/kg)	Aroclor ² 1262 (ug/kg)
A-100	3300	--	--	--	--	--	--	--	--
A-101	7500	--	--	--	--	--	--	--	--
B-100	52	--	--	--	--	--	--	--	--
B-101	1800	--	--	--	--	--	--	--	--
C-100	130	<22	<22	<22	520	<22	<22	69	<22
C-101	2800	<220	<220	<220	<220	<220	2500	<220	<220
C-102	910	<220	<220	<220	<220	<220	1500	<220	<220
C-103	1700	<220	<220	<220	<220	<220	<220	1600	<220
C-104	34	<22	<22	<22	<22	<22	<22	<22	<22

1 = EPA Method 418.1
Extraction Method = EPA 3550
2 = EPA Method 8080
Extraction Method = EPA 3550

Table 2
SECOND PHASE EXCAVATION SAMPLE RESULTS

Sample Number	TPH ¹ (mg/kg)
A-200	18
A-201	13
B-200	<10
B-201	<10
C-200	13
C-201	<10
C-202	20
C-203	<10

1 - EPA Method 418.1
Extraction Method = EPA 3550



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/01/90
DATE REPORTED: 05/02/90
PAGE 1 OF 7

LAB NUMBER: 100325

CLIENT: ECOLOGY & ENVIRONMENT, INC.

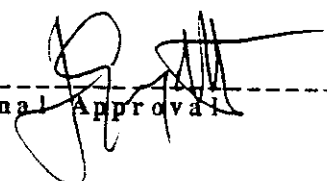
REPORT ON: 9 SOIL SAMPLES

PROJECT #: SP-9000
LOCATION: SP-HIGH STREET

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 100325
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 JOB #: SP-9000
 LOCATION: SP-HIGH STREET

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 2 OF 7

EPA 418.1: Total Petroleum Hydrocarbons by IR in Soils & Wastes
 Extraction Method: EPA 3550

LAB ID	CLIENT ID	RESULT (mg/Kg)
100325-1	A-100	3,300
100325-2	A-101	7,500
100325-3	B-100	52
100325-4	B-101	1,800
100325-5	C-100	130
100325-6	C-101	2,800
100325-7	C-102	910
100325-8	C-103	1,700
100325-9	C-104	34

QA/QC SUMMARY

RPD, %	3
RECOVERY, %	101

LAB NUMBER: 100325-5
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-100

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 3 OF 7

=====

POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550

=====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	22
AROCLOR 1232	ND	22
AROCLOR 1016	ND	22
AROCLOR 1242	520	22
AROCLOR 1248	ND	22
AROCLOR 1254	ND	22
AROCLOR 1260	69	22
AROCLOR 1262	ND	22

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

RPD, %	<1
RECOVERY, %	82

=====

LAB NUMBER: 100325-6
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-101

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 4 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	2,500	220
AROCLOR 1260	ND	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

LAB NUMBER: 100325-7
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-102

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 5 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	1,500	220
AROCLOR 1260	ND	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

LAB NUMBER: 100325-8
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-103

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 6 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	220
AROCLOR 1232	ND	220
AROCLOR 1016	ND	220
AROCLOR 1242	ND	220
AROCLOR 1248	ND	220
AROCLOR 1254	ND	220
AROCLOR 1260	1,600	220
AROCLOR 1262	ND	220

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====

LAB NUMBER: 100325-9
 CLIENT: ECOLOGY & ENVIRONMENT, INC.
 PROJECT #: SP-9000
 LOCATION: SP-HIGH STREET
 SAMPLE ID: C-104

DATE RECEIVED: 05/01/90
 DATE ANALYZED: 05/01/90
 DATE REPORTED: 05/02/90
 PAGE 7 OF 7

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550
 =====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	22
AROCLOR 1232	ND	22
AROCLOR 1016	ND	22
AROCLOR 1242	ND	22
AROCLOR 1248	ND	22
AROCLOR 1254	ND	22
AROCLOR 1260	ND	22
AROCLOR 1262	ND	22

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 82
 =====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/08/90
DATE REPORTED: 05/10/90
PAGE 1 OF 2


LAB NUMBER: 100418

CLIENT: ECOLOGY & ENVIRONMENT

REPORT ON: 8 SOIL SAMPLES

PROJECT #: SP-8070
LOCATION: SP HIGH STREET

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 100418
 CLIENT: ECOLOGY & ENVIRONMENT
 JOB #: SP-8070
 LOCATION: SP HIGH STREET

DATE RECEIVED: 05/08/90
 DATE ANALYZED: 05/09/90
 DATE REPORTED: 05/10/90
 PAGE 2 OF 2

EPA 418.1: Total Petroleum Hydrocarbons by IR in Soils & Wastes
 Extraction Method: EPA 3550

LAB ID	CLIENT ID	RESULT (mg / Kg)	REPORTING LIMIT (mg / Kg)
100418-1	A-200	18	10
100418-2	A-201	13	10
100418-3	B-200	ND	10
100418-4	B-201	ND	10
100418-5	C-200	13	10
100418-6	C-201	ND	10
100418-7	C-202	20	10
100418-8	C-203	ND	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, % 2
 RECOVERY, % 101