REMEDIATION OF OIL CONTAMINATED SOIL
AT THE FORMER
CONDENSATE COLLECTOR LOCATION
1588 DOOLETTLE DRIVE
SAN LEANDRO. CALIFORNIA

6/24/93

#### PREPARED FOR:

AIRCO DISTRUBUTOR GASES 1588 DOOLITTLE DRIVE SAN LEANDRO, CALIFORNIA

PREPARED BY:

REMEDIATION SERVICES, INC. 1181 QUARRY LANE, BLDG. 350 PLEASANTON, CALIFORNIA

June 24, 1993 Job No. R93003

environmental services

1181 Quarry Lane Bldg. 350

Pleasanton, CA 94566 Tel: 510/462-4002 Fax: 510/462-3025

1665 "E" Street Suite 105

Fresno, CA 93706 Tel: 209/485-2429 Fax: 209/268-7041 Airco Distributor Gases 1588 Doolittle Drive San Leandro, California 94577

Attention: Mr. Mark Schappel

Subject:

Remediation of Oil Contaminated Soil at the

Former Condensate Collector Location

1588 Doolittle Drive, San Leandro, California

#### Gentlemen:

Remediation Services, Inc. (RS) submits this progress report regarding remediation of oil contaminated soil at the subject location in San Leandro, California for Airco's records. The initial scope of work for this project included:

- Excavation and stockpiling of contaminated soil.
- Sampling and analysis to assess removal of oil contaminated soil.
- o Backfill and compaction of the excavation.
- Characterization and disposal of excavated materials.
- o Preparation of an Engineer's Report documenting remediation.

On June 14, 1993, as authorized by Airco, the scope of work was expanded to include volatile analyses for ten of the soil samples taken from the excavation.

#### Background

Airco recently decommissioned as in ground condensate collector located behind the acetylene manufacturing building. The collector was used to contain condensate from gas compressing operations. The condensate was suspected to contain compressor oil.

On February 4, 1993, RS contacted Mr. Robert Weston of the Alameda County Department of Environmental Health regarding permitting requirements for removal of the collector. Mrs Weston indicated that no permits were required and instructed RS to proceed with the project on a self-directed basis.

Soil Remediation 1588 Doolittle Drive San Leandro, California

June 24, 1993 Job No. R93003 Page 2

RS removed the collector for Airco on February 8, 1993. The collector consisted of a metal cylinder approximately one foot in diameter and four feet long. It appeared to have a perforated bottom. The cylinder was oriented vertically and extended to a depth of three to three and one-half feet below ground surface.

Soft surrounding the collector was observed to be dark and only smelling. A backhoe was used to obtain two soil samples, one from a depth of approximately four foot below ground surface and the other from approximately eight feet below ground surface. Laboratory analysis of the samples indicated oil and grease concentrations of 720 ppm in the upper sample. Oil and grease was not detected in the lower sample. Laboratory data sheets and chain-of-custody/request-for analysis documents for the two samples are presented in Appendix A.

Based on findings of soil contamination, RS discussed both assessment and remediation entions with Airco. Airco opted to forego further assessment and to proceed with excavation of the oil contaminated soil.

#### Site Description and Subsurface Conditions

Buildings associated with Airco's acetylene manufacturing operations are located to the west and south of the former condensate collector as shown on Figure 1. Immediately to the southeast is a concrete sump used to contain calcium hydroxide solutions which are a byproduct of the acetylene manufacturing process. An asphalt paved road is located to the north. The area where the condensate collector was formerly located is surfaced with concrete.

Groundwater was not encountered during exervation of oil contaminated soils at the collector site. Based on subsurface data collected in March 1990 during RS's investigation and closure of the west lime impoundment, it is anticipated that the depth to groundwater would be approximately 10 to 15 feet below ground surface.

Site stratigraphy at the former location of the condensate collector includes asphalt pavement (3 inches) or concrete (6-12 inches) underlain by inconsistent thin layers of baserock, lime and clay to a depth of approximately 2 feet below ground surface. A layer of stiff, black clay is present from approximately 2 to 5 feet below ground surface. From 5 feet to 8 feet, which represents the maximum depth of excavation, greyish-green clay soils were observed.

REMEDIATION SERVICES, INC.

#### Summary of Project Work

Excavation of oil contaminated soil from the former collector location commenced on June 1 1993 and was completed on June 3, 1993. Initial work involved breaking and removing concrete and asphalt surfacing materials covering the area to be excavated. Following that, oil contaminated soil was excavated and stockpiled at an adjacent paved storage area. Contaminated materials were stockpiled on and covered with 6-mil plastic sheeting.

The presence of black clayey soils at the site made it difficult to discuss the basis of visible staining. The presence of an unusual odor in the soil, which was attributed to reported overflows from the adjacent concrete sump, made it difficult to discern contaminated soil on the basis of smell. Accordingly, excavation was conducted in a phased appreach in which soil samples were collected from the excavation and submitted for analysis. The end of each day in order to assess remaining contamination and the need for additional excavation work. Figures 1, 2 and 3 illustrate the progression of excavation work and show the focations of representative soil samples taken to assess contaminated soil removal. Soil sample analytical results for oil and grease are summarized in Table 1. Supporting documents (laboratory data sheets, chain-of-custody/request-for-analysis forms) are presented in Appendix B.

Subsequent to removing oil contaminated soil from the former condensate collector location, the excavation was backfilled with a combination of surplus baserock from a recent impoundment closure and imported Class 2 baserock. Compaction of the backfill materials was monitored by Robert Y. Chew Geotechnical. A copy of the compaction report is presented in Appendix C.

Approximately 25 cubic yards of asphalt and concrete and 80 cubic yards of contaminated solution were excevated during remediation work. In order to characterize these materials for disposal, a 5-point composite sample was taken and submitted for Oil & Grease, PCB, CAM metals, volatile organics and RCI analyses. Analytical results are indicated on the laboratory data sheets presented in Appendix D. Chain-of-custody and request-for-analysis documents are also presented in Appendix D.

Analytical results for the stockpile characterization sample indicate the presence of acetone, methyl ethyl letters (MEK) and tetrachloroethene in the stockpiled soil. On the basis of this information, Airco authorized volatile organic analyses for soil samples previously taken from the excavation to assess removal of oil contaminated soil. The analytical results are summarized in Table 1 and laboratory data sheets are presented in Appendix B.

#### Conclusions and Recommendations

Analytical data for soil samples taken from the excavation indicate that oil contaminated soil has been removed from the former condensate collector location. However, during subsequent volatile organic analyses of those same samples, acetone, MEK, benzene and tetrachloroethene were determined to be present in the soil. Based on this information, we recommend that a copy of this report be submitted to Mr. Robert Weston of the Alameda County Department of Environmental Health so that RS may discuss with Mr. Weston requirements for additional investigation and remediation at the site, if any.

Regarding disposal of the excavated contaminated materials presently stockpiled on-site, BFI in Livermore has refused to accept the material on the basis of its acctone and mercury content. Zanker Recovery Systems in San Jose is also unable to accept the material. Forward, Inc. in Stockton has accepted the material. Accordingly, it is recommended that the material be disposed at the Foreward Landfill in Stockton. The manifests should be retained along with this report in Airco's property records.

We trust the information presented in this report satisfies your present needs. Please call if you have questions.

Sincerely,

REMEDIATION SERVICES, INC.

John W. Schweizer, P.E.

Manager

JWS/rdf:rpj

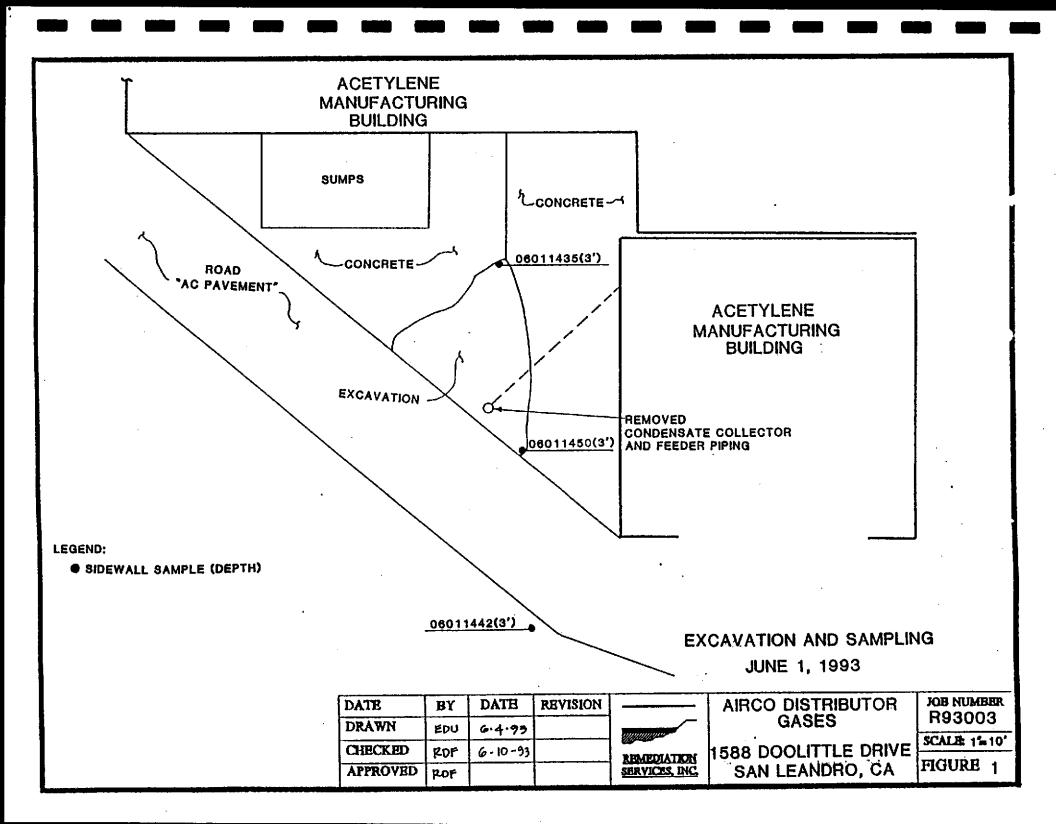
Attachments: Appendices A, B, C and D

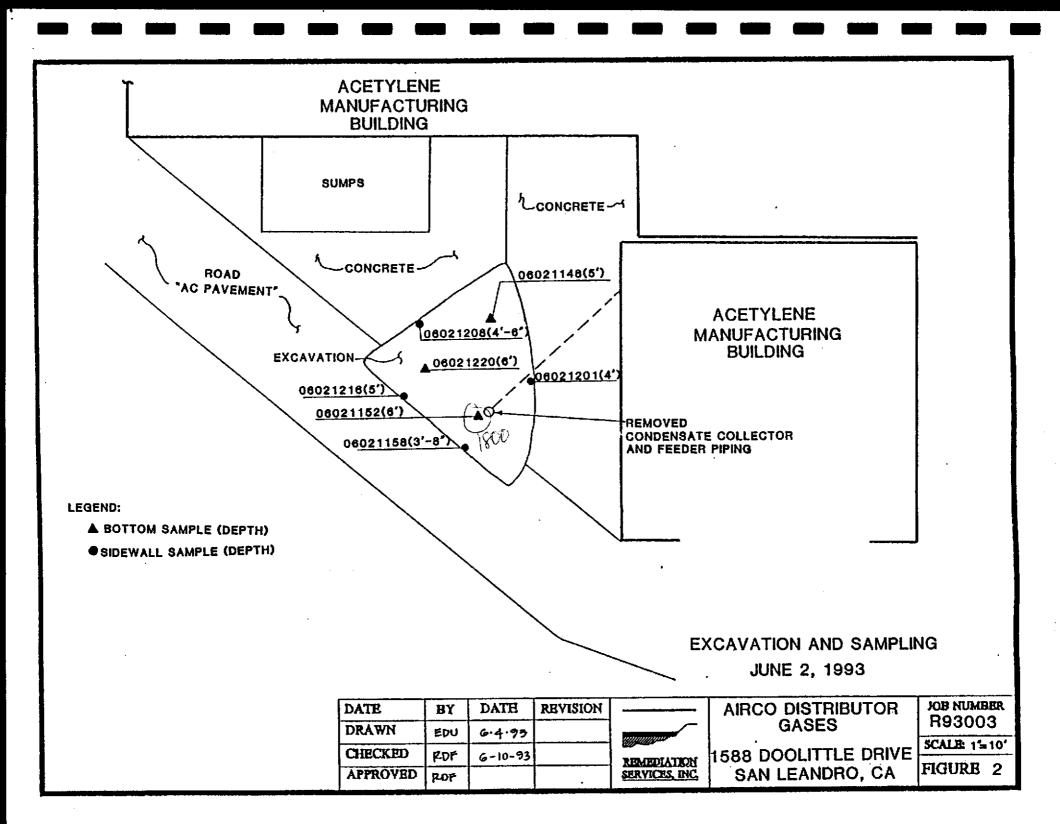
TABLE 1
Soil Sample Analytical Data (Results in mg/kg)

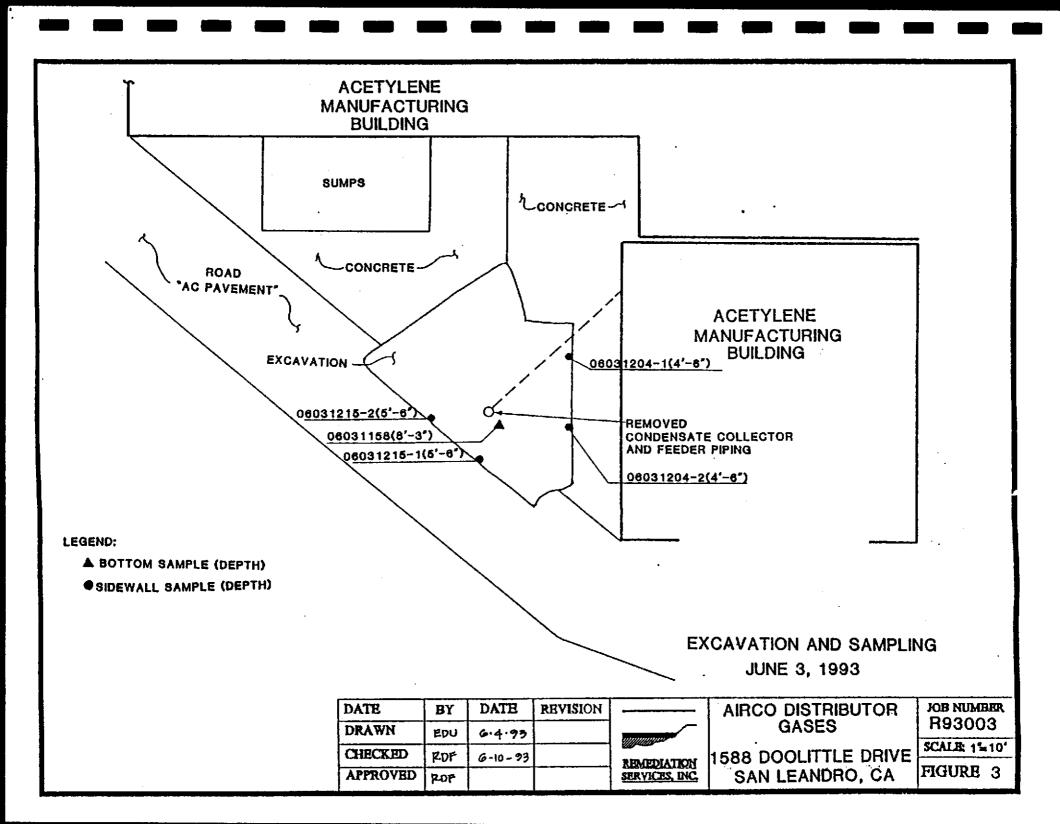
Sample No.	Sample Location	Sample Depth (Feet)	Oil & Grease	Acetone	MEK	Tetrachloroethene	Benzene
06011435 06011450 06011442 06021148 06021152 06021158 06021201 06021208 06021216 06021220 06031158 *06031204-1 *06031204-2 *06031215-1 *06031215-2	Figure 1 Figure 1 Figure 1 Figure 2 Figure 2 Figure 2 Figure 2 Figure 2 Figure 3	3 3 5 6 3.67 4 4.5 5 6 8.25 4.5 4.5 5.5	ND ND ND 1800 ND 190 ND	1 35 NA 39 NA 29 NA 0.85 4 0.27 0.37 0.44 79 NA NA	0.027 0.72 NA 0.065 NA 1.1 NA 0.054 0.051 0.015 0.018 0.036 0.25 NA NA	ND NA ND NA ND NA ND NA ND	ND N

Samples 06031204-1 and 06031204-2 composited for Oil & Grease analyses. Samples 06031215-1 and 06031215-2 composited for Oil & Grease analyses.

ND None Detected NA Not Analyzed







Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

February 16, 1993

ChromaLab File No.: 0293085

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REMEDIATION SERVICES, INC.

Attn: R. D. Freitag

RE: Two soil samples for Oil & Grease analysis

Project Name: ARCO

Project Number: R93003 / Control No. C020843C

Date Sampled: Feb. 8, 1993 Date Submitted: Feb. 8, 1993

Date Analyzed: Feb. 12, 1993

#### **RESULTS:**

Sample I.D.	 Oil & Grease (mg/Kg)					
02081100 02081122	710 N.D.					
BLANK DETECTION METHOD OF	N.D. 50 STD METHOD 5520 E & F					

ChromaLab, Inc.

Carolyn M. House

Ana Wet

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

February 12, 1993

REMEDIATION SERVICES, INC.

Project Name: ARCO Control No. C020843C

Date Sampled: Feb. 8, 1993 Date Submitted: Feb. 8, 1993 Date of Analysis: Feb. 10, 1993

Sample I.D.: 02081100

ChromaLab File # 0293085

Attn: R. D. Freitag

Project No: R93003

Method of Analysis: EPA 8010

Matrix: Soil

Reporting Det. Limit: 5.0  $\mu$ g/Kg

Dilution Factor: None

COMPOUND NAME	да/Ка	Spike Recovery
CHLOROMETHANE	N.D.	
VINYL CHLORIDE	N.D.	
BROMOMETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	117% 108%
METHYLENE CHLORIDE	N.D.	
1,2-DICHLOROETHENE (TRANS)	N.D.	
1,2-DICHLOROETHENE (CIS)	N.D.	
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	95% 97%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	<b></b> -
2-CHLOROETHYLVINYLETHER	N.D.	<del></del>
TRANS-1,3-DICHLOROPROPENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	12	92% 88%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	<b></b>
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	93% 97%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	~~~

ChromaLab, Inc.

Mary Coppeth

Mary Cappelli Analytical Chemist

Eric Tam Laboratory Director

#### REMEDIATION

CHROMALAB FILE # 293085 ORDER #

				10394	No 0	
SERV	ICES, INC.	CHAIN-OF-CU:	SIUDI HECU	HU '		0208934
	T NAME/NUMBER ALS	C/C Control No. COZORS  LAB DESTINATION Correspondence  CARRIER/WAYBILL NO. NA.				
Sample Number	Sample Location and Description	Cate and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
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Rece	ived By:		_ Receive	a By:		

WHITE - To accompany samples YELLOW Field copy PINK - Office copy

Remediation Services, Inc.			REQUEST FOR A	NALYSIS	R/A Control No. Rozo893 C/C Control No. Cozo893	
PROJECT NAMI	E .	ARIO		DATE SAMPL	ES SHIPPED	2-8-93
ROJECT NUM	BER	R93003	}	LAB DESTINA	ATION	Cotomorpo
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		A	NION, CA 945			•
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		<u> </u>		PROJECT CO		2-15-93
						Koo FROTTHE
		<del></del>		Phosecrice	ONTACT PHONE NO.	(50) 462-4002
Sample No.	Same	ple Type	Sample Volume	Preservative		Requested Testing Program/Instructions
12081100	Soir		1202 14m	TCE	8010 Hope	alterban bil & brief
208 1122	Soil		802 som	ILE	HYDESCARB	ON OIL GREASE
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	<del></del>	Normal	Rueh	(Subject to rush surcharge)	Secreta Destruct Co. Co. 1	2 - 1 - 9 >
SSIBLE HAZARO IDENTIFICA	ATION: (Please I	ndicate if sample(s) :	<del></del>	pected to contain high levels of hazard	Results Desired By (Date)	<del>2.73-73</del>
onhazard		nmable	Skin irritant	Highly Toxic	Other	
PLE DISPOSAL: (Please)	indicate dispositio	n of sample following	g analysis. Lab will charge for packi	ing, shipping and disposal.)		(Please Specify)
Heturn	to Cilent	Die	spoonl by Leb			
LAS USE ONLY	Received 1				S. A. IVI	
FE To accompany sample LOW - Field copy					Date/Time	
: - Ощев сору тъх - ыни сору		•				

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 2, 1993

ChromaLab File No.: 0693009

Submission #:

REMEDIATION SERVICES, INC.

Attn: Rod Freitag

RE: Three soil samples for Oil & Grease analysis

Project Name: AIRCO Project Number: R93005

Date Sampled: June 1, 1993 Date Submitted: June 1, 1993

Date Analyzed: June 1, 1993

**RESULTS:** 

Oil & Grease Sample I.D. (mg/Kg)\_ 06011442 N.D. 06011435 N.D. 06011450 N.D. BLANK N.D. DETECTION LIMIT 50 METHOD OF ANALYSIS STD METHOD 5520 E & F

ChromaLab, Inc.

Carolyn M. House

Analyst

Eric Tam

Laboratory Director

#### REMEDIATION

SAMPLE: 7473

06011435

CLIENT: REMEDTN DUE:

06/02/93

cadie # 11892 CHAIN-OF-CUSTOUT HECORD

R/A Control No. Part of the P

C/C Control No. C Man 13 C

SERVICES,	INC.
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PROJECT NAME/NUMBER\_\_

LAB DESTINATION CHRICALAR

SAMPLE TEAM MEMBERS\_

CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Callected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Flecord No.
11.0114.5	Shi sing while Some	1-1-93 14:35	يارن	En: SS Ture		
96cy 1442	NE SINE OF THE PLAN (A.3'DEEP.	6-1-93 11:42	Sal	2"x6" SS THOL		
Obo 114 57		6-1-93 14:50	الما المالية	2'x6" 55 THE		
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Special Instructions:	Bust Permits - Cit 1000000
Possible Sample Hazards:	Conditions On
SIGNATURES: (Name, Comp	pany, Date and Time)
1. Relinquished By:	3. Relinquished By:
Received By:	The first All Miles 6-192 150 EReceived By:
2. Relinquished By:	4. Relinquished By:
Received By:	Received By:

DC	Remedia	tion
N	Services,	Inc.

#### REQUEST FOR ANALYSIS

R/A Control	No.	RULEITSO	
C/C Control	No	1 444 336	

Services, Inc.				LOCATION A	INALIOIO	C/C Control No. A Control No.	
PROJECT NAME ARCO		DATE SAMPL	ES SHIPPED	6/1/23			
PROJECT NUMBER £4 5005		LAB DESTINA	ATION	- Final AB			
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	DEIT110		· · · · · · · · · · · · · · · · · · ·	PROJECT CO	•	1	
					ONTACT PHONE NO.	K. PRYSOL	
				FHOJECT CC	DNTACT PHONE NO.	510-412 61102	
Sample No.	Sample	Туре	Sample Volume	Preservative		Requested Testing Program/Instructions	
06011435	Soile		2 AU" SS Tusc Fall	Tie	DIL 4 605971	<u> </u>	
26011442	Soil	<u>.                                    </u>	2'x6" SSTUBE PULL	166	DIL & SPEAS	>t2	
76011450	Son		2'x6'55 7655 Fall	100	OIL A SHIM		
	···						
•		Normal	Rush /	(Subject to rush surcharge)	Results Desired By (Date)		
SSIBLE HAZARO IDENTIFIC	CATION: (Please in	licate if sample(s)	are hazardous materials and/or suspected	to contain high fevels of hazam	• • • • • • • • • • • • • • • • • • • •		
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Environmental Laboratory (1094)

5 DAYS TURNAROUND

June 3, 1993

ChromaLab File No.: 9306021

Submission #: 9306000021

REMEDIATION SERVICES, INC.

Attn: ROD FREITAG

RE: Seven soil samples for Oil & Grease analysis

Project Name: AIRCO Project Number: R93005

Date Sampled: June 2, 1993 Date Submitted: June 2, 1993

Date Analyzed: June 2, 1993

#### **RESULTS:**

Sample I.D.	Oil & Grease (mg/Kg)						
0602/148	N.D.						
0602/152	1800						
0602/158	N.D.						
0602/201	190						
0602/208	N.D.						
0602/216	N.D.						
0602/220	N.D.						
BLANK	N.D.						
DETECTION LIMIT	50						
METHOD OF ANALYSIS	STD METHOD 5520 E & F						

ChromaLab, Inc.

Carolyn M. House

Analyst

Eric Tam

Laboratory Director

	ediation ces, Inc		F	REQUEST FOR A	NALYSIS	R/A Control No. P - 0 C/C Control No. C - 0	602
ROJECT NAM	E	AIR	co	DATE SAMPL	ES SHIPPED	6-2-93	
ROJECT NUM	BER	7013000		LAB DESTINA	ATION	CHEOMALAB	
ROJECT MAN	AGER	200	FREITAG	LABORATOR	Y CONTACT	Epic.	
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		PLEASANT	m. CA. 04166	•			
URCHASE OR	DER NO.	<u>N</u>	A	DATE REPOR	RT REQUIRED	6-3-93	
		1		PROJECT CO	ONTACT	FOD FREITAG	
				PROJECT CO	ONTACT PHONE	NO. (513) 462 - 4782	
Sample No.	Sen	nple Type	Sample Volume	Preservative		Requested Testing Program/Instructions	
0602 1148	S	711	FULL	106	01261	45/SE	
602 152							
602 1158							<del></del> -
X02 1201					SU.	BM #: 9306000021	
202 208						MPLE: 7535 060:11 JENT: REMEDTN	<b>i</b> 8
1216						E: 06/03/93	
2602 220	•	<u> </u>	<u> </u>	\   \	<u> </u>	<u> </u>	
<del></del>	<del>-</del>					· · · · · · · · · · · · · · · · · · ·	
}		Hormel	Rush 🗸	(Subject to rush surcharge)	Results Desired By (6	Date)	
		indicate if samplé(s) ar	e hazardous materials and/or suspec	cted to contain high levels of hazar	dous substances.)		
Honhazard		emmable	Skin Irritant	Highly Toxic		ther(Please Sp	Cecity)
•	to Client		analysis. Lab will charge for packing	i subbing and disposal.)			
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	Received	i By finalis .	1.7 16 Stor 18	* , **	Date/Time c'		

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#### REMEDIATION

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#### **CHAIN-OF-CUSTODY RECORD**

R/A Control No	P-0602
C/C Control No.	C-0602

	İ		
PROJECT NAME/NUMBER AIRCO	P93005	LAB DESTINATION CHROMALAB	
SAMPLE TEAM MEMBERS D. FREIT	- · .	CARRIER/WAYBILL NO.	
SWINITE I THIS INTENDED AT LOCAL	V-112/		

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Containes Type	Condition on Receipt (Name and Date)	Disposal Record No
06021148	(a) 51 MEREP	6-293 11:48	Soll	2"xc" SS TUBE		
C21152	(i) 6 herp	6-293 11:52				
06021158	Ø, 3'-8" DEEP	6-2-43 11:58				
CCOZNO	~	6-2-93 12:01				
0602,209	- '54 1 441' -	6-2-93 17:08				
06021716		6-2-73 12:16				
0602 12		4-2-93 12:20	V	¥		

Special Instructions:	
Possible Sample Hazards:	
SIGNATURES: (Name, Company, Date and Time)	
1. Relinquished By: Mark a who P3 6-293	3. Relinquished By:
Received By: 199 1999 Chinades 6-2-13	Received By:
2. Relinquished By:	4. Relinquished By:
Received By:	Received By:

WHITE - To accompany samples
YELLOW - Field copy
PINK - Office copy

K93025"K"

#### CHROMALAB, INC.

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 3, 1993

ChromaLab File No.:

9306035

Submission #:

REMEDIATION SERVICES

Rod Freitag Attn:

Three soil samples for Oil & Grease analysis RE:

Project Name: AIRCO Project Number: R93003

Date Sampled: June 3, 1993 Date Analyzed: June 3, 1993 Date Submitted: June 3, 1993

RESULTS:

Oil & Grease Sample I.D. (mq/Kq) 06031158 N.D. 06031204-1 & 2 Composite N.D. 06031215-1 & 2 Composite N.D. N.D. BLANK DETECTION LIMIT 50 STD METHOD 5520 E & F METHOD OF ANALYSIS

ChromaLab, Inc.

Carolyn M. House

Analyst

Eric Tam

Laboratory Director

06/03/93 DUE: 11924 REQUEST FOR ANALYSIS R/A Control No. ACCOSTS A C/C Control No. Lolus 73C PROJECT NAME **DATE SAMPLES SHIPPED** PROJECT NUMBER LAB DESTINATION PROJECT MANAGER LABORATORY CONTACT **BILL TO** ENVILLE SEND LAB REPORT TO PURCHASE ORDER NO. DATE REPORT REQUIRED **PROJECT CONTACT** PROJECT CONTACT PHONE NO. / 5 Sample No. Sample Type Sample Volume Preservative Requested Testing Program/Instructions 2811" 35 Tune 70,5 Tie 01.031154 じしじょきゃり U1. 1312041 61.631215-11 CLUS 1215-1 11 (Subject to rush surcharge) Results Desired By (Date) POSSIBLE HAZARO IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.) **Honhazard** Skin Initant **Highly Toxic** (Please Specify) SAMPLE DISPOSAL: (Please indicate disposition of sample tollowing analysis. Lab will charge for packing, shipping and disposal.) FOR LAB USE ONLY WHITE - To accompany samples YELLOW - Field copy PINK - Office copy

#### REMEDIATION

<b>CHAIN</b>	-OF-CI	USTODY	RECORD
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R/A Control No. POLOSASA

DENSITS EXCAMPTION BIRM 8'-3", SILL (0/3/9), 11:58 (8)L ZXL SS TOKE  DENSITOR -1 SIDEMAN 4'2", " 6/3/93, 17:04 1. "  DENSITOR -2 SIDEMAN 4'2", " 6/3/93, 17:04 ". "	
Sample Number   Sample   Container   Condition on Receipt   Collected   Type   Type   Container   Condition on Receipt   Collected	
Number Location and Description Collected Type Type (Name and Date)    DLW 1178   [X: 9/14-101   B27141   3'-3"   Sell   (1/3/9)   1/59   (2/14   2/14   2/14   2/14   1/1	
DEUXILOY-1 SIDEMALL 4'E', " 6/3/93, 17:04 ". " " " " " " " " " " " " " " " " " "	Disposat ecord No.
Ubositor-2 Sidewale 4's', " 6/3/93, 17:04 ". "	
1005104-2 SIDLWALL 7-1 10/3/15, 1009	*
060312151 SIDEWALL 5/2, " 6/2/2, 12:15 " 3	
DEUXILIST SIDEMPIL 51/2 " (6/3/93 1215 "	
	<del></del>
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Special Instructions:	
Possible Sample Hazards: Canyanson Dic	
SIGNATURES: (Name, Company, Date and Time)	
$\mathcal{A}_{i}$	
/ He delle-	
Received By: Received By:	
2. Relinquished By: 4. Relinquished By:	
Received By: Received By:	

. WHITE - To accompany samples · YELLOW · Field copy PINK - Office copy

Environmental Laboratory (1094)

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO

Date Sampled: June 1, 1993 Date Submitted: June 1, 1993

Date of Analysis: June 15, 1993

Sample I.D.: 06011435

ChromaLab File # 9306174

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0  $\mu$ g/Kg

Dilution Factor: None

Compound	μq/Kq	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	N.D.	
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
MÉTHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	, the rate was
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE	N.D.	~~~
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	1000	
METHYL ETHYL KETONE	27	•
METHYL ISOBUTYL KETONE	N.D.	<del></del>

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

and ...

Eric Tam Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO

Date Sampled: June 1, 1993

Date Submitted: June 1, 1993

Date of Analysis: June 15, 1993 Sample I.D.: 06011450

ChromaLab File # 9306174

Attn: Rod Freitag

7 M. HU: 31U 30176 (95

Project No: R93005

Method of Analysis: **EPA 8240** 

Matrix: Soil

Reporting Det Limit: 5.0 µg/Kg

Dilution Factor: None

Compound	μq/Kq	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	N.D.	
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
MÉTHYLENE CHLORIDEN	N.D.	eff est 100 est
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1.1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	em see tee
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	₩ • • •
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	en en en <b>en</b>
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	<b>~~~</b>
TOTAL XYLENES	N.D.	
ACETONE	35000	
METHYL ETHYL KETONE	720	,
METHYL ISOBUTYL KETONE	N.D.	<del>-</del>

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

the south additional material management as easier

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO
Date Sampled: June 2, 1993
Date Submitted: June 2, 1993
Date of Analysis: June 18, 1993

Sample I.D.: 06021148

ChromaLab File # 9306175

Attn: Rod Freitag

Project No: R93005

**EPA 8240** Method of Analysis:

Matrix: Soil

Reporting Det Limit: 5.0  $\mu$ g/Kg Dilution Factor: None

~		a
Compound	uq/Kq	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	и. D.	
BROMOETHANE	N.D.	<b></b>
CHLOROETHANE	N.D.	4
TRICHLOROFLUOROMETHANE	N.D.	90% 84%
1,1-DICHLOROETHENE	N.D.	904 846
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	<del></del>
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	<b></b>
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	# # # # #
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	<del></del>
2-CHLOROETHYLVINYLETHER	N.D.	quy only delth delth
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	39000	
METHYL ETHYL KETONE	65	
METHYL ISOBUTYL KETONE	N.D.	*
WILLIT TROBOLLY VETONE	2	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

5 DAYS TURNAROUND

## CHROMALAB, INC.

Environmental Laboratory (1094)

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO
Date Sampled: June 2, 1993
Date Submitted: June 2, 1993
Date of Analysis: June 18, 1993

Sample I.D.: 06021158

9306175 ChromaLab File #

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0  $\mu$ g/Kg Dilution Factor: None

	μα/Κα	Spike Recovery
Compound	N.D.	
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	N.D.	
BROMOETHANE	•	
CHLOROETHANE	и.р.	
TRICHLOROFLUOROMETHANE	N.D.	90% 84%
1.1-DICHLOROETHENE	и.р.	
METHYLENE CHLORIDEN	N.D.	<b></b>
1 2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	и. D.	حد جه جه حد
CHLOROFORM	N.D.	
1.1.1-TRICHLOROETHANE	й.D.	~ +
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1.2-DICHLOROETHANE	N.D.	99% 98%
TRICHLOROETHENE	N.D.	994 300
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1, 3-DICHLOROPROPENE	N.D.	
TRANS-I, S-DICHDONOLXOL	N.D.	<b></b>
TOLUENE CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
DIRKOWOCHTOKOMETITATA	N.D.	
CHLOROBENZENE	N.D.	- + e e
ETHYLBENZENE	N.D.	
BROMOFORM	N.D.	106% 109%
1,1,2,2-TETRACHLOROETHANE	N.D.	
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	29000	
ACETONE	1100	
METHYL ETHYL KETONE	N.D.	
METHYL ISOBUTYL KETONE	14 • 12 •	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO Date Sampled: June 2, 1993 Date Submitted: June 2, 1993

Date of Analysis: June 18, 1993

Sample I.D.: 06021208

ChromaLab File # 9306175

Attn: Rod Freitag

Project No: R93005

~н. 7**40:**510 831-8,58

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0 µg/Kg

Dilution Factor: None

Compound	μα/Kα	Spike Recovery
CHLOROMETHANEN	N.D.	***
VINYL CHLORIDE	N.D.	
BROMOETHANE	N.D.	444 to 45 to
CHLOROETHANE	N.D.	# <b></b>
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	de de set se
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	***
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	24 Av. 45 Av
1,1,2-TRICHLOROETHANE	N.D.	چې هند نت مه
TETRACHLOROETHENE	N.D.	117% 125%
DIBROMOCHLOROMETHANE	N.D.	<b>**</b> •* •*
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	40 40 at 40
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	****
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	850	
METHYL ETHYL KETONE	54	
METHYL ISOBUTYL KETONE	N.D.	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam Laboratory Director

**5 DAYS TURNAROUND** 

## CHROMALAB, INC.

Environmental Laboratory (1094)

ChromaLab File # 9306175

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO

Date Sampled: June 2, 1993 Date Submitted: June 2, 1993

Date of Analysis: June 18, 1993 Sample I.D.: 06021216

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0 µg/Kg

Dilution Factor: None

Compound	ца/Ка	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	и.D.	Fig. 449 Fig. 489.
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	<b>= → ↔ →</b>
TRICHLOROFLUOROMETHANE	N.D.	
1.1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	<b>107 400 400 407</b>
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99 <b>% 98</b> %
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE -	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1.3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	<b>=+</b> -
ACETONE	4000	
METHYL ETHYL KETONE	51	
METHYL ISOBUTYL KETONE	N.D.	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO
Date Sampled: June 2, 1993
Date Submitted: June 2, 1993
Date of Analysis: June 18, 1993
Sample I.D.: 06021220

ChromaLab File # 9306175

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0 µg/Kg

Dilution Factor: None

Compound	μα/Κα	Spike Recovery
CHLOROMETHANEN	N.D.	~~~
VINYL CHLORIDE	N.D.	****
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	and also deal also
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	خند نخله شخه نهيب
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1,2-DICHLOROETHANE	N.D.	ten dra 710 110
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	40 40 40 FB
BROMODICHLOROMETHANE	N.D.	همم هست ولود ويود
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	270	
METHYL ETHYL KETONE	15	
METHYL ISOBUTYL KETONE	N.D.	40 40 40

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO

Date Sampled: June 3, 1993 Date Submitted: June 3, 1993 Date of Analysis: June 18, 1993

Sample I.D.: 06031158

ChromaLab File # 9306176

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0  $\mu$ g/Kg Dilution Factor: None

Compound	µа/Ка	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	N.D.	
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	n.D.	***
1,1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	-
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	28	***
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	### ### ### ### ### ### ### ### ### ##
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	N.D.	117% 126%
DIBROMOCHLOROMETHANE	N.D.	71/0 ILU
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	1004 1034
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	370	
METHYL ETHYL KETONE	18	
METHYL ISOBUTYL KETONE	N.D.	
TOODOLIN VETONS	N.U.	

ChromaLab, Inc.

David Wintergrass Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO
Date Sampled: June 3, 1993
Date Submitted: June 3, 1993
Date of Analysis: June 18, 1993
Sample I.D.: 06031204-1

ChromaLab File # 9306176

Attn: Rod Freitag

Project No: R93005

Method of Analysis: EPA 8240

Soil Matrix:

Reporting Det Limit: 5.0  $\mu$ g/Kg Dilution Factor: None

Compound	μq/Kq	Spike Recovery
CHLOROMETHANEN	N.D.	
VINYL CHLORIDE	N.D.	~ ~ ~ ~
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	***
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	90 40 40 an
CIS-1,3-DICHLOROPROPENE	N.D.	
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	9.7	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DICHLOROBENZENE	N.D.	7008 1038
1,4-DICHLOROBENZENE	N.D.	**
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	440	
METHYL ETHYL KETONE	36	
METHYL ISOBUTYL KETONE	N.D.	
	17 + 17 +	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 21, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO
Date Sampled: June 3, 1993
Date Submitted: June 3, 1993
Date of Analysis: June 18, 1993
Sample I.D.: 06031204-2

ChromaLab File # 9306176

Attn: Rod Freitag

Project No: R93005 Method of Analysis: Matrix: Soil EPA 8240

Reporting Det Limit: 5.0  $\mu$ g/Kg Dilution Factor: None

Compound	uq/Kg	Spike Recovery
CHLOROMETHANEN	N.D.	~~-
VINYL CHLORIDE	N.D.	~~~
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	90% 84%
METHYLENE CHLORIDEN	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	7.5	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	99% 98%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1, 3-DICHLOROPROPENE	N.D.	-
TOLUENE	N.D.	
CIS-1,3-DICHLOROPROPENE	N.D.	die des sage sage
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	83	117% 126%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE .	N.D.	
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	106% 109%
1,3-DÍCHLOROBENZENE	N.D.	20 de 20 de
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	
TOTAL XYLENES	N.D.	
ACETONE	79000	
METHYL ETHYL KETONE	250	
METHYL ISOBUTYL KETONE	N.D.	

ChromaLab, Inc.

David Wintergrass

Analytical Chemist

Eric Tam

Laboratory Director

	diation ces, Inc.		1-100,70NA	TO PINALUSES SUBMITTED EQUEST FOR A	bli, b/c, & b/3	R/A Control No. C/C Control No.
PROJECT NAMI PROJECT NUMI PROJECT MANA BILL TO	JECT NUMBER  JECT MANAGER		R93007 L Rio FREITAL L		ES SHIPPED ATION Y CONTACT EPORT TO	JUNE 1, Z; 3 CHHONALAB ERIL TAM
PURCHASE ORI	DER NO.			PROJECT CO	RT REQUIRED ONTACT ONTACT PHONE NO.	NURMAN TAT Ron FREITAL 510 462-4002
Sample No.	Sampl	е Тура	Sample Volume	Preservative		Requested Testing Program/Instructions
06011435	Soil	· · · · · · · · · · · · · · · · · · ·	2×6" >> TUBE	ICE	8240	
06011450	ZVIL	<del></del>	1,	, ,	1,	
11602 1148	1.6		/\	1.	11	
1607-1158	1.		, ,	J (	1.	
06021708	71	<u>,</u>		11	11	
12021216	11		71	) (	11	
06021720	1.		1.	1,	1.	
0603 1158	11		11	, ,	11	
11603/204-1	1 •		) e	<b>)</b> .	g to the control of t	
U603/LU4-2	1,		11	/1	),	
		Normal	Rush	(Subject to rush surcharge)	Results Desired By (Date)	
POSSIBLE HAZARO IDENTIFIC Monhezard		dicate if sample(s)	are hazardous materials and/or suspects Skin irritant	ed to contain high levels of hazan Highly Todo	dous substances.)	
	indicate disposition		ng analysis. Lab will charge for packing,	shipping and disposal.)		(Please Specify)

Deto/Time\_\_

WHITE - To accompany samples

Received By

YELLOW - Field copy PINK - Office copy

FOR LAB USE ONLY

ROBERT Y. CHEW
GEOTECHNICAL, INC.

Project No. 91015-A24E1 June 11, 1993

Mr. Rod Freitag Remediation Services, Inc. 1181 Quarry Lane, Building 350 Pleasanton, California 94566

SUBJECT: Excavated Pit Backfill Observations and Testing

Acetylene Plant

Airco Industrial Gases Facility

1588 Doolittle Drive San Leandro, California

Dear Mr. Freitag:

As requested, our firm has observed the excavated pit backfilling and performed field density testing at the subject site. The scope of our services included attendance at meetings and discussions with yourself and the grading contractor regarding site preparation requirements, scheduling, and procedures; obtaining a bulk sample of the on-site backfill material for laboratory testing; and observations of placement and subsequent testing of the compacted backfill material.

Our engineering staff made site visits during the period between June 2 to June 4, 1993. During these visits, we recovered a bulk sample of the on-site backfill material for laboratory compaction testing; presented verbal recommendations for backfilling procedures; and observed site preparation, compaction procedures, and performed field density tests. The results of the laboratory compaction test (and the results of a previous laboratory compaction test for the imported aggregate base material) are presented in Table 1. The results of the field density tests are presented in Table 2. The approximate locations of the field density tests are shown on the Site Plan, Figure 1.

The roughly triangular-shaped pit was situated near the eastern corner of the Acetylene Plant Building, located at the southeastern property corner of the Airco Gases Facility. The excavated area forming the pit was approximately 238 square feet and its depth ranged from approximately 6 to 8 feet.

During our site visit on June 3, 1993, we recommended that the pit backfilling procedures consist of "proof-rolling" the exposed grade of the pit. Pumping or soft areas observed during the proof-rolling, if any, should be excavated to firm material. Following the proof-rolling, backfill material should be placed in uniform lifts not exceeding 8 inches in loose thickness, moisture-conditioned, and compacted to at least 90 percent of the maximum dry density, as determined by the ASTM D-1557 test method.

On June 4, 1993, it was observed that the exposed grade of the pit excavation was proof-rolled until firm; the on-site backfill material was then placed in thin (6-8 inches) uniform lifts, moisture conditioned, and compacted to at least 90 percent of the maximum dry density, as determined by the ASTM D-1557 test method; and approximately 6 feet of imported Class II aggregate base (AB) material was subsequently placed in thin lifts over the compacted on-site backfill material, moisture conditioned and compacted to at least 90 percent of the maximum dry density.

Based upon our observations and the results of the field density testing, it is our opinion that the site preparation, moisture conditioning, placement and compaction of the on-site and imported backfill material were performed in substantial conformance with our above stated recommendations.

If you have questions regarding the information contained in this report, please contact us.

Respectfully submitted,

ROBERT Y. CHEW GEOTECHNICAL, INC.

Rod R. Schurman Project Engineer

Robert Y.C. Chew Geotechnical Engineer

G.E. 2009

RRS/RYCC:rrs

Enclosures: Tables 1 and 2

Figure 1

Distribution: Remediation Services, Inc.

Attn: Mr. Rod Freitag (4 Copies)

No. 2009

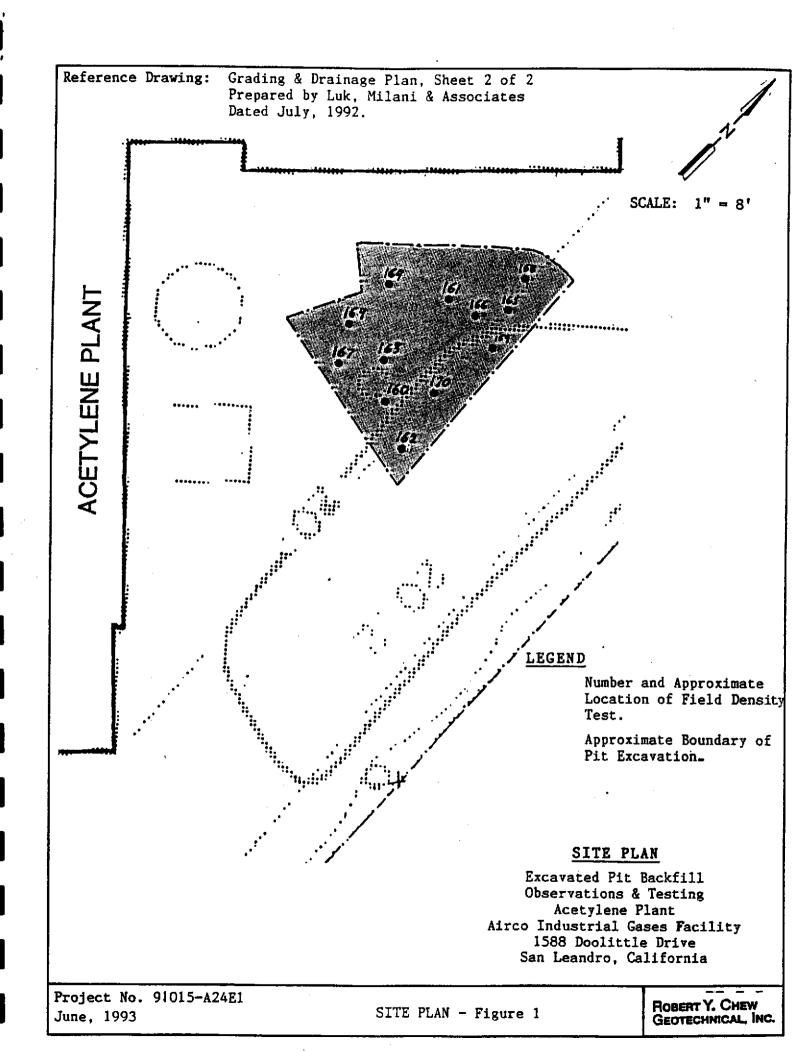
# TABLE 1 Project No. 91015-A24E1 SUMMARY OF LABORATORY COMPACTION TEST RESULTS (ASTM D-1557 Test Method) Optimum Maximum

Curve No.	Description of Material		Maximum Dry Density
9	RECYCLED CLASS II AGGREGATE BASE: grayish tan (Import).	8.0 %	138.0 pcf
10	SANDY GRAVEL: brown; trace to some silt & clay (On-Site Mix).	10.0 %	138.0 pcf

# TABLE 2 SUMMARY OF FIELD DENSITY TEST RESULTS (ASTM D-2922 Nuclear Test Method)

Project No. 91015-A24E1

Test No.	Date Tested	Approximate Referenced Elevation Feet	Moisture Content Percent	Dry Density pcf	Relative Compaction Percent	Reference Curve	Required Compaction Percent	Remarks
159	6/4/93	FSG-6.5	9.8	125	91	10	90	_
160	6/4/93	FSG-6.5	10.3	125	90	10	90	
161	6/4/93	FSG-5.0	10.0	124	90	9	90	
162	6/4/93	FSG-5.0	7.3	126	91	9	90	
163	6/4/93	FSG-3.5	7.0	128	92	9	90	
164	6/4/93	FSG-3.5	8.3	129	94	9	90	
165	6/4/93	FSG-3.5	7.5	125	91	9	90	
166	6/4/93	FSG-1.5	8.2	131	95	9	90	
167	6/4/93	FSG-2.0	7.3	129	93 .	9	90	
168	6/4/93	FSG-0.5	6.9	126	91	9	90	
169	6/4/93	FSG-0.5	7.5	125	91	9	90	
170	6/4/93	FSG-0.5	7.8	124	90	9	90	



Environmental Laboratory (1094)

5 DAYS TURNAROUND

June 8, 1993

ChromaLab file number: 9306034

Submission #: 9306000034

REMEDIATION SERVICES, INC.

Attn: ROD FREITAG

RE: One soil sample for Total CAM 17 Metals analyses (CA Title 22)

Project Name: AIRCO Project Number: R93003

Date Received: June 3, 1993 Date Sampled: June 3, 1993

Date Analyzed: June 7, 1993

RESULTS:

Sample I.D.: 06031019

Metals	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Antimony (Sb)	0.49	1.00
Arsenic (As)	5.4	0.25
Barium (Ba)	120	0.25
Beryllium (Be)	0.14	0.05
Cadmium (Cd)	1.5	0.05
Cobalt (Co)	9.5	0.50
Chromium (Cr)	39	0.50
Copper (Cu)	19	0.25
Lead (Pb)	6.6	0.50
Mercury (Hg)	0.174	0.05
Molybdenum (Mo)	2.5	0.25
Nickel (Ni)	42	0.50
Selenium (Se)	N.D.	0.50
Silver (Ag)	0.55	0.25
Thallium (T1)	N.D.	2.00
Vanadium (V)	21	0.50
Zinc (Zn)	65	0.25
DING (DII)	<b>V J</b>	3.23

Method of Analysis: 3050/6010/7471

ChromaLab, Inc.

Charles Woolley

Analytical Chemist

Refaat A. Mankarious Inorganic Supervisor

do

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 22, 1993

ChromaLab File No.: 9306233 Submission #: 9306000233

REMEDIATION SERVICES, INC.

Attn: Rod Freitag

RE: One soil sample for STLC-As, Cr, Hg & V analyses

Project Name: AIRCO Project Number: R93003

Date Sampled: June 3, 1993

Date Analyzed: June 22, 1993

Date Submitted: June 3, 1993

RESULTS:

Sample I.D.: 0603109

Metals	Concentration (mg/L)	Detection Limit (mg/L)
Arsenic (As)	0.18	0.05
Chromium (Cr)	0.5	0.10
Mercury (Hg)	0.047	0.005
Vanadium (V)	1.3	0.10

Method of Analysis: WET/3010/6010/7470

ChromaLab, Inc.

Charles Woolley

Analytical Chemist

Refaat A. Mankarious Inorganic Supervisor

do

Environmental Laboratory (1094)

**5 DAYS TURNAROUND** 

June 9, 1993

ChromaLab File No.: 9306034 Submission #: 9306000034

REMEDIATION SERVICES, INC.

Attn: ROD FREITAG

RE: One soil sample for PCB analysis

Project Name: AIRCO Project Number: R93003

Date Sampled: June 03, 1993 Date Submitted: June 03, 1993 Date Extracted: June 10, 1993 Date Analyzed: June 10, 1993

**RESULTS:** 

Sample I.D. PCB (mg/Kg)

06031019 N.D.

BLANK N.D.
DETECTION LIMIT 0.1
METHOD OF ANALYSIS 8080

ChromaLab, Inc.

Alex Tam Eric Tam

Analytical Chemist Laboratory Director

Environmental Laboratory (1094)

June 9, 1993

REMEDIATION SERVICES, INC.

Project Name: AIRCO

Date Sampled: June 3, 1993 Date Submitted: June 3, 1993 Date of Analysis: June 7, 1993

Sample I.D.: 06031019

ChromaLab File # 9306034 Submission #: 9306000034

**5 DAYS TURNAROUND** 

Attn: ROD FREITAG

Project No: R93003

Method of Analysis: EPA 8240

Matrix: Soil

Reporting Det Limit: 5.0  $\mu$ g/Kg

Dilution Factor: None

Compound	μq/Kq	Spike Recovery
CHLOROMETHANE	N.D.	
VINYL CHLORIDE	N.D.	
BROMOETHANE	N.D.	
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	به هم جه وي
1,1-DICHLOROETHENE	N.D.	79% 78%
METHYLENE CHLORIDE	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	
1,1-DICHLOROETHANE	N.D.	40 44 44
CHLOROFORM	N.D.	
1,1,1-TRICHLOROETHANE	N.D.	
CARBON TETRACHLORIDE	N.D.	
BENZENE	N.D.	
1,2-DICHLOROETHANE	N.D.	
TRICHLOROETHENE	N.D.	96% 87%
1,2-DICHLOROPROPANE	N.D.	
BROMODICHLOROMETHANE	И.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	
TOLUENE	N.D.	40 44 44 46
CIS-1,3-DICHLOROPROPENE	N.D.	<b></b>
1,1,2-TRICHLOROETHANE	N.D.	
TETRACHLOROETHENE	18	102% 107%
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	
ETHYLBENZENE ·	N.D.	
BROMOFORM `	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	101% 83%
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	***
TÓTAL XYLENES	N.D.	· ===
ACETONE	11000	
METHYL ETHYL KETONE	111	•====
METHYL ISOBUTYL KETONE	N.D.	

ChromaLab, Inc.

David Wintergrass Analytical Chemist Eric Tam

Laboratory Director

dt

Environmental Laboratory (1094)

5 DAYS TURNAROUND

June 10, 1993

ChromaLab File No.: 9306034 Submission #: 9306000034

REMEDIATION SERVICES, INC.

Attn: ROD FREITAG

RE: Soil sample(s) for reactivity, corrosivity, and ignitability (RCI) analyses.

Project Name: AIRCO Project Number: R93003

Date Sampled: June 3, 1993

Date Analyzed: June 10, 1993

Date Submitted: June 3, 1993

**RESULTS:** 

Sample I.D. Reactivity Corrosivity Ignitability

06031019 No 8.3 No

BLANK No ph 7.0 No

METHOD OF CA Title CA Title ANALYSIS SEC.66261.23(1-4) SEC.66261.22 SEC.66261.21

ChromaLab, Inc.

Carolyn M. House Eric Tam

Analyst Laboratory Director

do

	IEMI. RE	000034 DTN .0/93		Noma	<u> </u>				
SERVIC		1172	3	REQUEST FOR ANALYSIS			R/A Control No. 12060393 A C/C Control No. 2060393 A		
PROJECT NAME Age		DATE SAMPLES SHIPPED		SHIPPED	6/3/93				
PROJECT N	NUMBER	29300	<u> </u>	LAB DESTIN		-	CHEOMALAB		
PROJECT MANAGER ROO FREITAL			LABORATORY CONTACT		<del>-</del>	CHOLYN / Enc			
BILL TO Rem		0	IATION SERVICE				REMEDIATION SERVICES		
• • • • • • • • • • • • • • • • • • • •				Lu Biol 350		, LEWENTH IN SERVICES			
	•	, , , , , , , , , , , , ,	ANTON CA	<u> </u>		•			
PURCHASE	ORDER NO.		1111111	DATE REPORT REQUIRED			6/10/92		
			PROJECT CONTACT		-	Roo FROTAL			
						ACT PHONE NO.	(570)462-4002		
	P	<del></del>					(10) 160 400 6		
Sample No.	Sample Ty	. <u> </u>	Semple Volume	Preservative			Requested Testing Program/Instructions		
06031019	SOIL #1		LXb" SS TUBE	ICE		\			
06031019	5016 AC		15	71		COMPOSITE A	LL S SAMPLES INTO 1 AND		
0603 1017	501L #3		11	n		ANALYZE FOR	CAM METALS, 418.1,		
06031019	Soil #4		3/	/1		8240, RCI	, PCB		
06031019	CONCRETE/B.	SC FOCK S	11	11					
	<u> </u>	<u></u> ]				٠.			
TURNAROUND TIME I	REQUIRED: (Rush must I	pe approved by th	e Project Manager.)  Rush	(Subject to rush surcharge)		Results Desired By (Date)			
POSSIBLE HAZARO IC	DENTIFICATION: (Please	indicate if sample	s) are hazardous materials and/or s	uspected to contain high levels of haz	ardous s	rubstances.)			
Honhazard	Flan	mmable	Side Irritant	Highly Toxic	<u></u>	Other	Glassa Sassibul		
SAMPLE DISPOSAL:	(Please Indicate disposition Return to Cilent	on of sample follow	ring analysis. Lab will charge for pe Pregrocal by Leb	cking, shipping and disposal.)	•		(Please Specify)		
FOR LAB USE ONLY	Received	By W	The Whith		•	Date/Time 6.7-1	17-17:05		
WHITE - To accompany			V VIIIV		•		<u> </u>		

PINK - Office copy

#### REMEDIATION

SERVICES, INC.

#### **CHAIN-OF-CUSTODY RECORD**

R/A Control No. ROGO393 A

<u> </u>	TCES, TNC.	OHAIII O	JOIODI NECO	C	:/C Control No. <u></u>	060393C		
PROJEC	TNAME/NUMBER 297003	Anco	LAB DESTINATION CHROMALAS					
SAMPLE	TEAM MEMBERS <u>LA VEBAN</u>	CARRIER/WAYBILL NO. 1, 19						
Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.		
0603/7/1	STOLKEILE, SOIL #1	C/3/93 1012	Sell	2×6' 35 Tues				
06031017	11 Sost#2	6/3/93 1019	SOIL	n an				
06031011	11 , Solu#3	6/3/93 1013	Serie	11 11				
61012090	11 , Soil #4	6/3/93 1019	Soir	11 11				
06 U3 10 M	" CONLINE: BANE FOCK	#5 6/3/93 1012	CANLAGE BASE	arc '' '' ''		<del></del>		
	-							
	· · · · · · · · · · · · · · · · · · ·							
				<u> </u>				
Special l	nstructions:							
Possible	Sample Hazards: Compressor	Osh		• .				
	URES: (Name, Company, Date an	nd Time)						
	./)	) / (B=						
1. Relind	quished By: ///	128 6-3-93	3. Relinquis	shed By:		· <del></del>		
Recei	ved By: Note Motion 6	5.343 (3:05	Received	d By:				
2. Relind	quished By:	4. Relinquished By:						
	ived Bv:	Received By:						
nece	IVECI IIV.		1 10001401	JUY.				

WHITE - To accompany samples YELLOW - Field copy PINK - Office copy

Environmental Laboratory (1094)

5 DAYS TURNAROUND

June 8, 1993

ChromaLab File No.: 9306034

Submission #: 9306000034

REMEDIATION SERVICES, INC.

Attn: ROD FREITAG

RE: One soil samples for Total Recoverable Petroleum

Hydrocarbon (TRPH) analysis by EPA 418.1

Project Name: AIRCO Project Number: R93003

Date Sampled: June 3, 1993

Date Submitted: June 3, 1993

Date Analyzed: June 8, 1993

**RESULTS:** 

Sample Total Recoverable
Petroleum Hydrocarbon
(mg/Kg)

06031019

610

BLANK DETECTION LIMIT METHOD OF ANALYSIS N.D. 10 EPA 418.1

ChromaLab, Inc.

Carolyn M. House

Analyst

Eric Tam

Laboratory Director

do